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THE EFFECT OF INCREASED AUDIT DISCLOSURE ON INVESTORS' PERCEPTIONS OF MANAGEMENT, AUDITORS, AND FINANCIAL REPORTING: AN EXPERIMENTAL INVESTIGATION

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DISSERTATION

A dissertation submitted in partial fulfillment of
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By
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ABSTRACT OF DISSERTATION

THE EFFECT OF INCREASED AUDIT DISCLOSURE ON INVESTORS' PERCEPTIONS OF MANAGEMENT, AUDITORS, AND FINANCIAL REPORTING: AN EXPERIMENTAL INVESTIGATION

Standard setters recently proposed increasing audit disclosures and reporting. Two experiments examine the effects of auditor-provided disclosures on financial statement users' perceptions of auditor independence, management credibility, reporting quality, materiality, and investment decisions. In the first experiment, I manipulate auditor agreement with management's estimates and whether the estimates are incentive-consistent for management. I find that users view auditors as more (less) independent when they agree (disagree) with management, given an unqualified opinion. I also find that users are able to identify management bias using audit disclosures, and that the disclosures are value-relevant. In the second experiment, I provide users with either an explicit or implicit materiality disclosure and elicit users' materiality judgments either before or after the disclosure. I find that users' materiality judgments are closer to the auditor's when elicited after an explicit materiality disclosure. Path analysis demonstrates that users' materiality judgments affect subsequent investment and audit-related judgments but do not affect important decisions related to auditor liability and investment. The findings provide empirical support for the argument that additional audit disclosures would increase the transparency and value-relevance of the audit report.

KEYWORDS: audit report, materiality, expanded auditor reporting, independence, investor perceptions

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Introduction and Motivation

Audit standard setters around the world recently issued proposals to clarify and expand auditor reporting and disclosure (PCAOB 2011b; IAASB 2011, 2012; APB 2012, 2013; EC 2012). The Public Company Accounting Oversight Board (PCAOB) in the United States, the Auditing Practices Board (APB) of the Financial Reporting Council (FRC) in the UK and Ireland, the European Commission (EC) in the EU, and the International Auditing and Assurance Standards Board (IAASB) internationally all have active projects investigating ways to improve the auditor's report. The standard setters' actions are in response to calls from financial statement users (hereafter referred to simply as users) for various reforms to the audit report to make it more informative and valuable for those seeking information about a company's financial statements.

In attempting to meet user demands, standard setters could dramatically increase the amount of information required in audit reports and change the role and responsibilities of the auditor. In current practice, audit reports are typically around four paragraphs of standardized language, depending on the country in which they are produced. They communicate very little beyond the auditor's opinion on the financial statements as a whole, and for some audits, an opinion on internal controls. Expanded audit reports could allow the auditor to address other matters considered significant by users that cannot be addressed in today's standard reports, including management's relative conservatism or aggressiveness in estimates, where estimates fall within an acceptable range,

items communicated to the audit committee, and the size limits the auditor used in determining items significant to the audit (PCAOB 2011b; IAASB 2011; APB 2012, 2013; EC 2012). The proposals have spurred vigorous debate amongst stakeholders (managers, auditors, investors, and board members) regarding the various options for change, particularly options that include auditor commentary on management's financial reporting choices. The additional audit disclosures under consideration would significantly increase both the amount and scope of information presented to financial statement users, and there is little evidence available to evaluate what effect these changes will have on the various stakeholders involved.

Investigating the effects of increased audit disclosure has important policy and economic implications. The four standard setters share general goals for the changes to the auditor's report. For example, the PCAOB's stated intent for changes to the audit reporting model is to increase transparency and relevance to users (2011b). Similarly, the IAASB's stated goal is to enhance the value and relevance of auditor reporting (2011). However, little data are available to provide evidence concerning whether the standard setters' proposals would achieve these goals

Auditors and preparers have raised a number of fears related to the PCAOB's concept release. The issues raised include concern that such disclosures would change the role of the auditor from providing assurance to being the primary source of information traditionally provided by management, the potential for confusion among investors due to conflicting information,

increased legal liability, and further compression of year-end audit work that would put additional pressure on auditors' time and resources.

While auditors and management raise valid concerns, they may not yet recognize the potential benefits of expanding audit disclosure. One of the PCAOB's stated goals for increasing audit disclosure is to make the auditing process more transparent to users (PCAOB 2011b). Prior literature suggests that educating users about the role and scope of an audit may help reduce high litigation costs (Jennings et al. 1991; Porter 1993). Auditors and managers may also underestimate the opportunity afforded by expanded audit disclosure to demonstrate their positive attributes to users.

On the other hand, users are also raising concerns and making requests of regulators. One simple, but potentially important, user request has flown under the radar during much of the debate; users have repeatedly called for auditors to disclose quantitative materiality thresholds[1] in the audit report (Mock et al. 2009; PCAOB 2011b, 2011d; IAASB 2011; Carcello et al. 2011; IAASB 2012). In light of the fact that users are requesting a materiality disclosure, users and regulators may feel that such a disclosure would increase the usefulness of the audit report, but as with many policy implementations, there may be both beneficial and detrimental unintended consequences. For example, a simple materiality disclosure could change the operational definition of materiality. Normatively, an auditor's materiality judgment is based on what matters to users. If users change

[1] The quantitative materiality threshold is the dollar amount that auditors use in considering whether an item is significant to their opinion on the financial statements as a whole.

their materiality judgments based on the auditor's disclosure, the relationship reverses with users' materiality being determined by the auditor for the first time.

Expanded audit disclosures are expected to have economically important effects as well. Numerous studies show that disclosures and transparency in accounting choices can improve users' judgments of managers' credibility (Clor-Proell 2009; Hirst et al. 2007; Hodge et al. 2006), and increased disclosure surrounding the audit process may similarly impact credibility judgments. Furthermore, perceptions of audit quality and management credibility have been shown to affect investment decisions (Mayhew 2001; Barton and Mercer 2005; Hirst et al. 2007; Dee et al. 2011). Also, there is some evidence to suggest that materiality disclosures can improve a market's ability to price securities (Fisher 1990). Identifying the potential benefits of audit disclosures for auditors and management may help prevent them from using boilerplate language, which has been raised as a concern by users and regulators.

The purpose of this dissertation is to investigate the effects of increased audit disclosure on users' perceptions of financial reporting quality, management, and the auditor as well as users' investment-related judgments and decisions. Two experiments accomplish this purpose. The first experiment is based on the attribution theory of causal inference (Kelley 1973) and support theory (Tversky and Koehler 1994) and tests the effect of audit disclosure content on users' perceptions of auditor independence, management credibility, and users' perceptions of the risk of material misstatement. The findings identify cases in which expanded disclosure causes users to perceive the management more

negatively, as well as cases in which users view management and the auditor in a more positive light than they would without the additional disclosure.

The second experiment explores the effects of an auditor's materiality disclosure on users' materiality judgments. Based on the anchoring and adjustment heuristic, I expect, and find, that users anchor their materiality judgments on the thresholds disclosed by the auditors, which subsequently affect additional investment-related judgments but not investment decisions. Because users' materiality judgments have traditionally been made independent of input from the auditor, these findings indicate that materiality disclosures could fundamentally change the operational definition of materiality such that materiality would no longer be defined by what is important to users, but rather by what is important to auditors.

Current Proposals and Debate

During the period from 2011 to 2013, four of the world's major audit standard setters issued proposals to clarify and expand auditor reporting and disclosure (PCAOB 2011b; IAASB 2011, 2012; APB 2012, 2013; EC 2012). In June of 2011 the Public Company Accounting Oversight Board (PCAOB) issued its *Concept Release on Possible Revisions to PCAOB Standards Related to Reports on Audited Financial Statements* (2011b). The concept release solicits comments on four potential changes to audit reporting, including the addition of an "Auditor's Discussion and Analysis" (AD&A) section to the audit report. The AD&A would, among other things, allow the auditor to discuss significant matters including the results of audit procedures, the auditor's views regarding difficult or

contentious issues encountered, management's choice of accounting policies and estimates, materiality levels, and items communicated to the audit committee (PCAOB 2011b).

In May of 2011 the International Auditing & Assurance Standards Board (IAASB) issued its consultation paper, *Enhancing the Value of Auditor Reporting: Exploring Options for Change* (2011). The consultation paper puts forth a number of options for expanding auditor reporting and disclosure, including a possible requirement for auditors to provide their insights about the reporting entity and the quality of the financial reports. The auditor's views regarding "qualitative aspects of the entity's accounting policies, including the relative conservatism or aggressiveness reflected in management's selected policies" and an "assessment of management's critical accounting judgments and estimates, including where each critical judgment or estimate falls within a range of possible results" (IAASB 2011, page 19) are both among the possibilities considered by the IAASB for expanding auditor reporting. The IAASB's May 2011 release was followed by an invitation to comment on an example report in 2012 (IAASB 2012). That example report included (among other things) paragraphs directly addressing management's critical estimates. It should be noted that neither the IAASB nor the PCAOB proposals have resulted in specific, suggested changes to auditing standards. Rather, they are still being developed and discussed by stakeholders.

The British Auditing Practices Board (APB) of the Financial Reporting Council (FRC) issued a number of consultation papers during 2012 and 2013

aimed at strengthening audit reporting and communication both with users and corporate boards (APB 2012, 2013). The APB's proposals are more directed than those of the PCAOB and IAASB in that the APB is proposing semi-standardized language that directly addresses numerous issues through specific changes to the International Standards on Auditing (ISAs) followed by British and Irish firms. For instance, under the APB's 2013 proposal, the auditor would have to discuss material risks, the application of materiality during the planning and performance of the audit (including "the threshold used by the auditor as being material for the financial statements as a whole"), and how the audit scope responded to identified material risks and the auditor's application of materiality. These changes would specifically be enacted through a change to ISA 700 (APB 2013). As with the PCAOB and IAASB proposals, investors appear to be reacting favorably to the proposal, while other parties are providing mixed reactions (APB 2013).

Finally, the European Commission suggested draft legislation for the European Parliament during 2012 (EC 2012). The suggested legislation contains similar types of disclosures as proposed by the other three standard setters, including materiality level and audit methodology disclosures. However, more detailed information about specific audit findings is reserved for the audit committee, and the proposed legislation is more sweeping than the proposals of the other three regulators in that it also contains provisions that affect audit contracting and independence rules (EC 2012). The EC suggested legislation can be viewed as audit industry reforms that contain specific report changes.

The PCAOB intends to change the audit reporting model to increase transparency and relevance to users (2011b). Similarly, the IAASB intends to enhance the value and relevance of the report (2011). In light of the fact that users are requesting many of these proposed changes, users and regulators may feel that the new disclosures will achieve these goals, but as with many policy implementations, there may be both beneficial and detrimental unintended consequences.

Auditors and management of reporting entities have expressed concern about the proposals to expand the audit reporting model while investors are generally advocating the expansion (PCAOB 2011d; APB 2013). Auditors appear to be advancing four arguments against the adoption of additional audit disclosures. First, representatives from the international audit firms in attendance at the PCAOB's roundtable (2011d) expressed concern that audit disclosures would change the role of the auditor from providing assurance by attesting to information provided by management to acting as a primary source of new information and disclosure, a role that audits are not currently designed to fill. Further, conflicting messages from management and the auditor could confuse less sophisticated (non-professional) investors. This concern has been echoed internationally (APB 2013). Second, auditors are concerned about the potential for increased litigation. The argument is that the more items auditors are responsible for disclosing, the more items they can potentially be held liable for in court. Third, auditors at the PCAOB roundtable also cited concerns about time and resource constraints. The audit timeline has been compressed in recent

years as reporting deadlines have been cut by regulators. Shorter deadlines coupled with an increased reporting role would mean that auditors are forced to do more work in less time. Some of those in attendance at the roundtable even cited concerns that the quality of audit work could suffer as a result (PCAOB 2011d). Finally, the auditors also expressed concern that fears of increased litigation risk coupled with time pressure would lead auditors to rely on boilerplate disclosures and language, something regulators and investors generally wish to avoid (PCAOB 2011d).

Despite the objections of auditors and preparers, high-quality auditors and management teams may reap unexpected rewards from expanded audit disclosure. For instance, it is common knowledge that an expectations gap exists between auditors and users of financial statements (e.g. McEnroe and Martens 2001). The expectations gap can be defined simply as the difference between what users believe auditors are responsible for and how they should conduct an audit and what the auditors believe they are responsible for and how they actually conduct the audit (Humphrey et al. 1992). Prior literature suggests that part of the cause of high litigation costs for auditors stems from this expectations gap (Porter 1993). One of the regulators' stated goals for an expanded report is to make the auditing process more transparent to users. To the extent that additional audit disclosures will incrementally reduce the expectations gap, litigation costs could also be reduced. For example, prior work with legal professionals indicates that judges give lower assessments of auditor liability when the auditor simply discloses the materiality threshold in the audit report

(Jennings et al. 1991). Auditors and managers may also underestimate the opportunity afforded by additional audit disclosure to demonstrate positive attributes such as independence and credibility to users. Discussion of both the auditors' decision making process and management's reporting positions highlights the choices of both parties, allowing users to make more inferences about reporting and audit quality.

A second concern that has not been raised by auditors or users is that the disclosure of auditor materiality thresholds causes a fundamental change in the operating definition and concept of materiality in accounting. Materiality is defined in terms of what matters to reasonable investors and is estimated by auditors and preparers in practice (this will be discussed further in the materiality section of the literature review). Users anchoring their materiality judgments on the auditor's disclosed materiality level transforms the flow of the materiality decision process. Rather than auditors and preparers simply estimating users' materiality levels, auditors gain a position of *influence* over users' materiality judgments. By showing that users' materiality judgments change with exposure to the auditor's materiality threshold, I demonstrate a significant, quantitative effect of the conceptual shift.

Brief Overview of Experiments and Findings

The first experiment in this dissertation systematically varies both the extent of the auditor's reported agreement with management's reporting choices and whether management reports in a manner that is consistent with their incentives. As a result, I find cases in which expanded audit disclosures cause

investors to perceive the management more negatively, but I also find cases in which investors view both management and the auditor in a more positive light than they would without the disclosures. Specifically, when the auditors communicate agreement with management, users rate the auditor as more independent because agreement is consistent with the audit opinion, and users' investment in the company's equity increases. Likewise, when managers choose to report inconsistently with their incentives and users' expectations, users attribute the choice to higher management credibility.

The second experiment tests the effects of a materiality disclosure on investors' materiality judgments. I find that investors anchor their materiality judgments on the threshold explicitly disclosed by the auditor, which represents a qualitative and quantitative change in the determination of materiality. This, in effect, shrinks the expectations gap between auditors and users, resulting in greater agreement with the audit report, even when uncorrected misstatements below the auditor's threshold are subsequently disclosed. While this is not a direct test of investors' willingness to pursue litigation, their agreement with the audit opinion would reasonably be expected to influence the litigation decision (Jennings et al. 1991). However, similar to prior research (Kadous 2000), my findings indicate that users ignore audit quality and instead focus on misstatement severity when determining the auditor's liability for misstatements.

Organization

The remainder of the dissertation is organized as follows: Chapter 2 provides a review of literature related to the current debate surrounding

proposals to change and expand the audit report, the current state and usage of the audit report, and the concept of materiality and its applications and interpretations. Chapter 3 relates the pertinent theories and development of hypotheses, first for experiment one, followed by those for experiment two. Chapter 4 addresses the design, participants, and methodology for both experiments. Chapter 5 provides the results and statistical analyses. Chapter 6 discusses the results and concludes.

Chapter 2: Literature Review

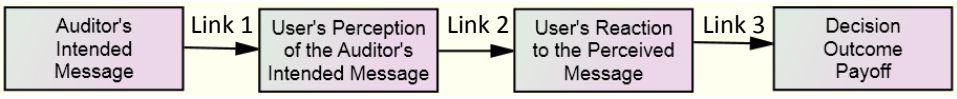
Audit Report Use and the Expectations Gap

To my knowledge, the effects on shareholders of the specific audit disclosures under consideration by regulators have not been empirically studied despite extensive discussion (e.g. the CAQ's Observations on the Evolving Role of the Auditor 2011 and the PCAOB Roundtable on Auditor's Reporting Model 2011). However, the accounting literature can speak to potential effects of expanded audit disclosure. For example, the effects on users' perceptions are expected to be economically important. Numerous studies show that perceptions of audit quality affect prices in financial markets (e.g. Mayhew 2001 and Dee et al. 2011). Prior studies have also shown that perceptions of management's credibility can affect stock prices (e.g. Hirst et al. 2007). There may also be advantages to increased disclosure for auditors and management that have not yet been identified. For example, prior research shows that disclosures and accounting choices can improve users' judgments of managers' credibility (Clor-Proell 2009; Hirst et al. 2007; Hodge et al. 2006). Increased audit disclosure may similarly impact credibility judgments for both management and auditors. In addition, there is a widely recognized expectations gap between auditors and users, and the use of audit reports has received much attention in the accounting literature. Church et al. (2008) review the literature on report use and find that it has symbolic value, but little communicative value. They conclude by calling for further research investigating the usefulness of additional report disclosures (Church et al. 2008).

Auditors can spend thousands of hours investigating the financial statements and assertions of management, but ultimately their work is distilled into a single audit opinion that often requires no more than four paragraphs on a single page to communicate to users. The standard, unqualified auditor's report identifies the statements covered by the report, a brief description of the auditor's work, and the opinion of the auditor that the statements present fairly, in all material respects, the financial position and results of the operations of the entity under audit, without qualification. The standard auditor's report is often viewed as a pass/fail model, and does not provide for discussion by the auditor, despite the extensive work that goes into the opinion. Not surprisingly, financial statement users want more information from their auditors (PCAOB 2011b, 2011d; Mock et al. 2009).

In 1979, Libby set out a model of the report's effect on financial statement users that includes three links (1979). Libby's model is reproduced in Figure 1 (p. 100 Libby, 1979). The first link connects the "auditor's intended message" and the "user's perception of the auditor's intended message". The audit expectations gap, defined as the difference between what users believe auditors are responsible for and how

Figure 1 – Libby's 1979 Model of the Effect of the Auditor's Report



they should conduct an audit and what the auditors believe they are responsible for and how they actually conduct the audit (Humphrey et al. 1992), is partly a result of the breakdown in this link. Furthermore, the PCAOB, by proposing to

expand the reporting role of the auditor, intends to make the audit report more transparent and relevant for financial statement users, i.e., to improve link one by allowing the auditor to communicate more clearly with users (PCAOB 2011b).

Numerous studies examine the state of the current (and prior) audit reporting models as well as the expectations gap that exists between users and auditors (Church et al. 2008). Today, the general consensus of researchers (e.g. Mock et al. 2009; Turner et al. 2010), users (PCAOB 2011b), and even auditors (PCAOB 2011d) is that the current auditor's reporting model is inadequate for users' needs.

Libby (1979) compares the perceptions of auditors and loan officers with regards to the messages conveyed by various audit reports and finds no significant disagreements between them. While Libby's study examines perceptions related to the specific message conveyed by audit reports, Arrington et al. (1983) examines differences in auditors' and users' causal attributions after an audit failure. They find that users are more likely than certified public accountants (CPAs – auditors are a subpopulation of CPAs) to blame the auditor for an audit failure. Specifically, the CPAs surveyed consider compliance with generally accepted auditing standards an important factor in exonerating the auditor whereas users do not (Arrington et al. 1983). This has important implications for the current reporting model because the current model focuses on defining the scope of an audit and the auditor's performance in terms of generally accepted auditing standards.

Gul (1987) shows that loan officers perceive more risk and demand more information when the borrower receives a qualified audit report[2]. Robertson et al. (1988) demonstrate that modifications to the then current reporting language could improve users' understanding and satisfaction with audit reports. Subsequent to their study, required reporting language changed, and in 1990, Pringle et al. investigated the effects of the change (1990). They found that for certain situations, the adopted reporting requirements were *more* ambiguous than the prior requirements because the new model combined elements of an unqualified opinion and a qualified opinion. This is of concern to the current debate because auditors argue that expanded disclosures could similarly blur the distinction between unqualified and qualified audit reports by discussing items that appear to be material problems, but in the auditor's opinion do not require a qualification on the audit report.

The current audit reporting model is meant to convey the level of assurance provided by an audit[3]. Epstein and Geiger (1994) demonstrate the expectations gap in auditing by highlighting the differences between the level of assurance auditors provide (reasonable assurance) and the level users believe auditors provide. The results of their survey show that 47% of users expect

[2] In an unqualified opinion, the auditor states that the financial statements present fairly, in all material respects, the financial position of the company, without any exceptions or qualifications on the opinion. It is sometimes referred to as a "clean" audit opinion. A qualified opinion indicates that there is at least one exception to the auditor's opinion that the financial statements of the company are fairly presented in all material respects (i.e. there is at least one significant problem with the financial statements). A third type of audit opinion is the adverse opinion. In the adverse opinion, the auditor states that the financial statements do NOT present fairly, in all material respects, the financial position of the company.

[3] The level of assurance audits are meant to provide is "reasonable assurance". Reasonable assurance is defined as a *high, but not absolute*, level of assurance that the financial statements are not *materially* misstated. However, the current report does not quantitatively define reasonable assurance or materiality for the reader.

absolute assurance that the financial statements are free from errors and an astounding 71% of users expect *absolute* assurance that the financial statements are free from the effects of fraud (Epstein and Geiger 1994).

McEnroe and Martens (2001) survey audit partners and individual investors regarding their views of the audit report and the audit function. Similar to Epstein and Geiger (1994), they find that users expect a higher level of assurance from auditors than audits are meant to provide. Of particular note, they find that over 60% of individual investors agreed or strongly agreed with the statement that an unqualified audit opinion indicates that *every* item of importance to investors and creditors has been disclosed in the financial statements (McEnroe and Martens 2001).

Despite evidence of the existence of an expectations gap, there is also evidence that the current auditor's reporting model is useful in making investment and credit decisions. Gomez-Guillamon (2003) finds that both lenders and investors find the auditor's report useful in making lending and investing decisions and that it even has some impact on the specific dollar amounts invested in the company. However, while still considered useful, Mock et al. (2009) find that many users simply view the unqualified auditor's report as a pass/fail proposition. In fact, in the focus groups conducted by Mock et al. (2009), users note that the report could be replaced by a simple "OK" stamp of approval.

The Mock et al. (2009) study deserves further consideration. The study was commissioned by the Auditing Standards Board and the International Auditing and Assurance Standards Board. It is a relatively recent, extensive, and

detailed look at users' perceptions of the current auditor reporting model used in the United States and two similar models used around the world. There are two stated goals for the study: to investigate the perceptions of stakeholders related to the auditor's report and to investigate the way in which stakeholders use the report in decision making. Mock et al. use focus groups consisting of five different categories of stakeholders including preparers (Chief Financial Officers), bank lenders, financial analysts, non-professional investors, and auditors to investigate perceptions of the standard auditor's report. They also use verbal protocol analysis in conjunction with a stock valuation task to investigate the effect the report has on the decision making process of the different stakeholders. Both the focus-group and verbal protocol analysis confirm that financial statement users value the auditor's report. The verbal protocol analysis shows that the auditor's report is specifically used as a signal of the reliability and completeness of the financial statements under consideration. Also, analysts consider the lack of an auditor's report to be a serious red flag, but once provided with the report, analysts do not change their valuations in any way (Mock et al. 2009). This lends credence to the PCAOB's (2011b) notion that the relevance of the auditor's report can be increased.

Two findings from Mock et al. (2009) that are particularly important for the present study relate to stakeholders' perceptions of the level of assurance provided by the audit report. First, stakeholders agree that the level of assurance is very closely tied to the auditor's materiality threshold, so much so that the materiality level and level of assurance are considered synonymous. While the

current auditor's reporting model provides "reasonable assurance," materiality is not disclosed. Thus, the stakeholders do not have a firm understanding of what level of assurance is actually provided. When asked what materiality thresholds used by auditors might look like, the responses (from the non-auditor groups) varied widely. They also varied among the auditor group (Mock et al. 2009). The findings suggest that in order for users to understand the level of assurance provided by an audit, the materiality threshold actually used by the auditor would need to be disclosed[4]. Second, one of the analysts present suggests something very similar to the AD&A under consideration by the PCAOB (p. 4 Mock et al. 2009):

> *"Another analyst said in addition to the company's disclosures of how they selected specific estimates and their judgments, analysts also would like a similar discussion from the auditor. For example, what did the auditor propose to the client as adjustments, why did they propose those adjustments, and if they were rejected by the client, why were they rejected?"*

Materiality

The specific effects of materiality disclosures have been studied in the past, though not extensively. In fact, reviews of the materiality literature by Holstrum and Messier (1982) and Messier et al. (2005) point out that very little is understood about users' materiality-related decisions or the effects of preparer and auditor materiality decisions on users (1982; Messier et al. 2005). On the other hand, there is a vast literature related to the more general questions of how

[4] The international framework for assurance engagements may do a better job of defining both reasonable and limited assurance without respect to a quantitative materiality threshold and by directly contrasting the two levels of assurance in an easily accessible format (IAASB 2004).

materiality judgments and decisions are made by auditors as well as what auditor and user levels are, generally. However, as Messier et al. point out, there are many questions left to answer before materiality and its use by auditors and financial statement user is fully understood (2005).

The concept of materiality is ubiquitous in the realm of accounting (Frishkoff 1970; Rose et al. 1970). It is vitally important to preparers, auditors, and users of financial information. Because of its importance, the PCAOB, the SEC, the Financial Accounting Standards Board (FASB), and the Supreme Court of the United States have all provided definitions. These definitions are quite consistent and frequently reference each other. The PCAOB defines materiality in Auditing Standard No. 11, *Consideration of Materiality in Planning and Performing an Audit*. The PCAOB cites the Supreme Court of the United States (from TSC Industries v. Northway, Inc. 426 U.S. 438, 449 1979) for a definition of materiality as:

> *"A substantial likelihood that the… fact would have been viewed by the reasonable investor as having significantly altered the 'total mix' of information made available."*

The SEC defines materiality in Staff Accounting Bulletin (SAB) No. 99 (1999):

> *"Materiality concerns the significance of an item to users of a registrant's financial statements. A matter is "material" if there is a substantial likelihood that a reasonable person would consider it important."*

SAB No. 99 also refers to the FASB's definition of materiality. The FASB's definition is found in Statement of Financial Accounting Concepts No. 2, and is stated as:

> *"The omission or misstatement of an item in a financial report is material if, in the light of surrounding circumstances, the magnitude*

of the item is such that it is probable that the judgment of a reasonable person relying upon the report would have been changed or influenced by the inclusion or correction of the item."

While these definitions of materiality are clearly centered on the needs of financial statement users, many parties make materiality judgments for a variety of purposes. Preparers make materiality decisions each time they decide what items to record in the financial statements (Frishkoff 1970). Auditors judge materiality during the planning stages of an audit, during the performance of the audit, and when rendering a final audit opinion on the financial statements (PCAOB 2010a, 2010b). Both management and auditors are responsible for estimating whether an item would matter to a reasonable investor, either due to its size (quantitatively) or due to the nature of the item (qualitatively – e.g., is an error due to fraud or a mistake?). Users must make their own materiality judgments when analyzing financial statements for investing and lending decisions as well as when evaluating management and the auditor, and exact materiality thresholds are likely unique to each user. Finally, third parties may be called upon to make materiality decisions as well, such as lawyers, judges, and jurors faced with audit related lawsuits (Jennings et al. 1987; Jennings et al. 1991).

All stakeholders seem to be in difficult positions when it comes to making materiality judgments. While there are widely accepted conceptual definitions of materiality, there are no explicit quantitative standards. At first glance, it would appear that users are in the best position when it comes to making materiality judgments – after all, materiality is defined in relation to the information they would choose to use. However, while users may know what they consider to be

material, they do not know what preparers and auditors consider material, nor do they know the precision of the financial information they must evaluate and rely on in the decision making process (Mock et al. 2009). On the other hand, auditors and preparers must assess and use materiality thresholds based on users' requirements without more than a general knowledge of the users' materiality thresholds and decision models (Jaedicke 1970). Ultimately, the materiality threshold is a matter of professional judgment, despite the prevalence of some basic quantitative (e.g. 5% of net income) and qualitative (e.g. fraud by upper management, changing a loss to income) thresholds. However, the PCAOB rejects common quantitative thresholds as the sole determining factor of whether an auditor or preparer classifies an item as material in AS No. 14 (PCAOB 2010b). To make matters worse, auditors and preparers may be held legally accountable for their materiality decisions by parties in the legal profession (lawyers and judges) who must make their own independent materiality judgments (Jennings et al. 1991). These difficulties lead to three important questions that have been addressed repeatedly in the accounting literature: 1) How do the various parties go about making materiality judgments? 2) Are there any generalizable quantitative and qualitative thresholds that emerge from these processes, and if so, what are they? 3) What level of agreement exists among the various parties regarding materiality?

Although pinning down a hard and fast rule for materiality thresholds appears impossible, past research has examined the ways in which different stakeholders determine materiality as well as measures of central tendency for

materiality thresholds within various stakeholder groups. Perhaps the first of the studies aimed at determining quantitative materiality thresholds was a survey reported by Woolsey in 1954. Woolsey reported that 72% of all respondents (users, preparers, and auditors) were primarily concerned with a number's size relative to current year net income, and that the materiality threshold was generally between 5% and 15% of net income (Woolsey 1954).

Rose et al. (1970) examined full and part-time MBA students' reactions to earnings per share (EPS)[5] comparisons. They found that their subjects reacted to changes in EPS starting at 6.6% to 7.0%. Importantly, they also find evidence consistent with user's materiality judgments following the Weber-Fechner Law of stimulus response (Rose et al. 1970). The Weber-Fechner Law states that "the change in intensity of a stimulus necessary before it can be detected is a constant function of the amount of stimuli present," (p. 141, 1970). If this is the case, then users will respond to 6.6% – 7.0% changes in EPS regardless of the nominal amount of EPS.

When the Rose et al. study was published in the *Journal of Accounting Research*, two commentaries were published alongside it. Jaedicke criticized the study because, while it demonstrated the change in EPS required for participants to respond that the two EPS numbers were different, it did not ask the participants to make any decisions with this information, despite the fact that materiality seems to be defined by the information's ability to impact a reasonable user's decision regarding the reporting entity (1970). In summary, the

[5] Earnings per share is calculated as the net income available to pay dividends to common stockholders divided by a company's weighted average shares of common stock outstanding during the year.

Rose et al. study may inform us of users' ability to differentiate EPS numbers, but it does not tell us when that difference changes their investment decisions. Johnson's (1970) commentary further criticizes the Rose et al. study for what Johnson considers lapses in the data analysis.

Boatsman and Robertson (1974) performed an experiment with CPAs and securities analysts to capture both the process for determining materiality as well as a general materiality threshold. They investigated eight variables over 30 cases, all of which were administered to 33 subjects (18 CPAs and 15 analysts). The multivariate model was 84% accurate in discriminating between material and immaterial items as judged by the participants. They found that three variables accounted for 99% of the predictive power in their model. Specifically an item's percentage of net income accounted for 73% of the predictive power, the nature of the item as either a gain or loss on non-current assets accounted for 24% of the predictive power, and the overall risk of the entity accounted for an additional 2%. The apparent dividing line for percentage of net income was calculated as 4%; items under 4% of net income were generally not considered material. Also, Boatsman and Robertson found that CPAs and analysts did not differ in their decision models in any meaningful way, indicating that CPAs are fairly well calibrated when it comes to assessing materiality with regard to professional users (1974).

Frishkoff examined audit reports from 1963 and compared those receiving qualified opinions due to material changes in accounting methods to those that received unqualified opinions. Frishkoff identified two quantitative factors and one

qualitative factor in the materiality decision. Frishkoff found that the size of the change in accounting method relative to net income and firm size were the two most important quantitative factors in the materiality decision (1970). Auditors considered whether or not the accounting change was a simple reclassification (which would not affect net income) as a qualitative factor in their decision (Frishkoff 1970).

Firth (1979) asked practicing auditors, chief accountants (preparers), and securities analysts in the United Kingdom to make materiality assessments in 30 hypothetical cases involving extraordinary items. He found that as a group, preparers had the highest materiality thresholds while analysts had the lowest, with auditors in between. Furthermore, there was substantial individual variance within occupation groups, though at a firm level there were no significant differences among the auditors from the three audit firms Firth sampled. Of the variables investigated, Firth found the item's size as a percentage of net income was the most important variable in determining whether it would be judged material by all three groups (auditors, preparers, and users) (1979). In contrast to Boatsman and Robertson's findings in the United States, Firth concludes that preparers and auditors are not meeting the information needs of users.

Steinbart (1987) studied the process auditors use for determining planning materiality extensively. In fact, the paper reports the development of an expert system with the help of an audit partner through an interactive field study. While the study provides a significant amount of knowledge about how auditors develop planning materiality, there is no information about the levels or methods auditors

use to judge materiality at the evaluation stage of an audit or how this might match up with users' materiality levels and methods. However, it is important to note that *one* of the basic rules within the expert system Steinbart developed is a 5% of net income rule for planning materiality if certain criteria are met (1987). This seems reasonable in light of past research.

Icerman and Hillison (1991) studied the evaluative materiality judgments of Big 8 auditors by reviewing errors detected and documented in the working papers of manufacturing audits. Icerman and Hillison performed a logit regression on the decision to require correction of an error and found that the relative size of an error was the most important variable in the decision. They note that the relative size thresholds of evaluative materiality judgments do not appear to follow a linear model. Rather, the threshold increases more slowly than the client's net income (Icerman and Hillison 1991). As a result, they do not describe a specific percentage of net income as a materiality threshold. Interestingly, their data on the size of errors relative to total revenues shows that of 699 waived errors, only 14 (2%) were larger than 1% of the client's revenue while 492 (70%) were 0.05% of total revenue or less. In contrast, 134 errors greater than 1% of revenue were corrected (Icerman and Hillison 1991). To provide perspective, there were only 148 instances of errors larger than 1% of total revenue, thus the booking rate was just over 90%. While no hard and fast rules for materiality judgments are apparent from the Icerman and Hillison study, it does appear that there is widespread agreement for materiality decisions when errors are particularly large or small.

Two studies conducted by Jennings et al. (1987; 1991) contrast the materiality judgments of auditors with those of lawyers and judges. Like preparers and auditors, lawyers and judges must also make materiality decisions in their professional roles when lawsuits are brought against auditors. Specifically, lawyers and judges are tasked with making a judgment as to what level of information is reasonable for a user to expect; lawyers do so when deciding whether to bring a suit and judges do so in deciding cases (Jennings et al. 1991). Thus, Jennings et al. (1991) argue that the materiality judgments of lawyers and judges may be good proxies for judgments of financial statement users and that the judgments of lawyers and judges are economically important to both auditors and preparers. In the first study, Jennings et al. constructed five hypothetical cases involving issues of inventory obsolescence, an extraordinary loss (an eminent domain seizure), a contingent liability (lawsuit), and an illegal act (bribe). They then asked 121 CPAs, 90 attorneys, and 56 judges to respond whether disclosure was required at each of six different dollar amounts while net income was held constant. Simply put, the findings show that there is wide variance between the materiality judgments of auditors and legal professionals, although, as the authors point out, interpretation of their results is sometimes difficult at first glance. As an example, the authors cite the case in which CPAs and legal professionals *appear* to be closest in their materiality judgments. In the example, 57% of the auditors surveyed believed a loss from obsolete inventory of 10% of net income would be material, and 57% of the legal professionals also believed such a misstatement would be material. However, the authors caution

against interpreting the findings to mean that there is agreement between CPAs and legal professionals. Even in this example, 43% of CPAs would *not* disclose the amount, but 57% of legal professionals believe it *should* be disclosed, indicating that there is neither wide agreement within the two groups, nor between the two groups. The study also finds a large difference of opinion regarding qualitative thresholds for disclosure. The authors give the example that 60% of judges believed that lawsuits should always be disclosed, regardless of size, while only 5% of CPAs agreed (Jennings et al. 1987).

While there appears to be a wide gap in materiality judgments between CPAs and legal professionals, Jennings et al. (1991) test a method of reducing this gap. First, it should be noted that 61% of lawyers and 72% of judges believe that explicit materiality standards should be promulgated and used in the accounting profession, whereas only 18% of CPAs agree (1987). Second, when Jennings et al. asked judges to make liability judgments in a hypothetical auditing case, adding language to the auditor's report that listed an explicit materiality threshold (10% of net income) significantly reduced the judges' liability judgments against the auditors. While auditors appear resistant to specific standards, these findings suggest that such standards (if adhered to) could benefit auditors in court. This finding is particularly important for my second experiment in that it implies that user groups may be willing to accept auditors' definitions of materiality even if their independent judgments would differ from those of the auditors.

Bernardi and Pincus (1996) examined the materiality decisions of managers on an audit case based on real audit clients. They identify 10 general rules of thumb for making materiality judgments from prior literature and compare the performance of 154 audit managers to those rules. They find that 75% of managers identified a quantitative materiality threshold that fit within the upper and lower bounds suggested by the ten rules (Bernardi and Pincus 1996). While their findings suggest that a set of ten general rules effectively describe 75% of audit managers' materiality judgments, this does not necessarily indicate a high level of agreement on the actual threshold. In fact, the upper and lower bounds of materiality indicated by the ten rules in the experimental audit case were $122,000 and $286,000 respectively (Bernardi and Pincus 1996). The range is larger than the lower bound, indicating that auditors could have significant disagreements about the materiality threshold. In fact, when the distribution of all responses is considered, the maximum number of managers within any $100,000 interval was only 42%.

Wright and Wright (1997) examine materiality judgments in the specific context of an auditor's decision to waive a proposed adjustment. They use archival data from actual audit working papers collected from a single national firm. Specifically, they requested information on the four largest proposed adjustments over 20% of materiality that were not related to adjustments routinely proposed by the auditor for that client. They received data from 186 audits. Each response included information on the accounts affected, the size of the proposed adjustment, the nature of the item (subjectively or objectively

determined), the level of planning materiality, and the decision to report or waive the item (Wright and Wright 1997). As expected, the proposed adjustments' relation to materiality was significant in explaining the decision to record the adjustment ("book" the adjustment) or not ("waive" the adjustment), with larger adjustments being more likely to be booked. Wright and Wright also found that a number of other factors were significant as well, such as whether the amount of the adjustment can be objectively (as opposed to subjectively) determined, the size and direction of the adjustment's affect on net income, and the size of the client. Perhaps the most startling finding of the study is that 47.5% of waived adjustments were larger than planning materiality (Wright and Wright 1997).

In a follow-up study, Joe, Wright, and Wright investigate audit adjustments by a Big 4 firm during 2002, a particularly high-risk time period for auditors due to the Enron scandal. They find that just 24% of the adjustments in the sample were waived compared to 67% in the 1997 study, and, contrary to prior studies, they find that materiality is *not* a determining factor in the book/waive decision (Joe et al. 2011).

The results of the Wright and Wright (1997) and Joe et al. (2011) studies are vitally important in light of regulators' proposals to expand the auditor's report due to the array of factors that apparently enter into the auditors' decision to require an adjustment. For instance, if Wright and Wright had found that materiality was the lone factor in the auditor's decision to waive an adjustment, it might be enough for the PCAOB to simply require that auditors disclose their quantitative materiality thresholds to users. However, clearly there are qualitative

factors and other considerations that enter into the decision making process, enough so that materiality is not a factor in the 2011 study and even quantitatively material adjustments are waived with non-trivial frequency in the 1997 study (Wright and Wright 1997; Joe et al. 2011). An expanded report might allow auditors to inform investors of the reasons behind their decisions related to important proposed adjustments as well as allowing the investor a basis to make their own judgments.

A number of conclusions can be reached from past research. First, there is evidence that materiality is judged differently by each individual decision maker, even when general guidelines may be present (Firth 1979). Second, there seems to be a consensus that materiality levels depend in part on the decisions the materiality level will be used for (Jaedicke 1970; Firth 1979; Steinbart 1987). Third, while there is some understanding regarding the general rules and factors that auditors consider in setting materiality limits, (Hicks 1964; Frishkoff 1970; Boatsman and Robertson 1974; Firth 1979; Jennings et al. 1987; Steinbart 1987; Wright and Wright 1997), there is mixed evidence regarding whether auditors' materiality judgments match those of investors (Woolsey 1954; Jennings et al. 1991; Fisher 1990; Tuttle et al. 2002; Cho et al. 2003). In summary, it seems likely that there are cases in which auditors and preparers do not assess materiality at a level that a majority of users would agree with, and in doing so, they use a number of qualitative and quantitative criteria that are not currently disclosed to users. This mismatch between auditors' and users' decision outcomes and criteria brings us to one of the current questions before regulators

of whether or not materiality should be disclosed to users of financial statements (PCAOB 2011b; IAASB 2012; APB 2013).

I am only aware of three studies from the extensive materiality literature that directly address the question of the effect of auditors' materiality thresholds on financial statement users, Fisher 1990, Tuttle et al. 2002, and an unpublished working paper from 2007 by Davis cited in the literature review by Church et al (2008). Of these three, only Fisher (1990) and Davis (2007) directly address the question of public disclosure to users.

Fisher (1990) runs an experimental market using double auctions and finds that when materiality levels are disclosed publicly, market efficiency increases (i.e., prices move toward the theoretical value of the asset) compared to when materiality levels are not disclosed or disclosed to a subset of investors. The theoretical underpinning of the study is that disclosing materiality allows users to better assess the extent of three information attributes of the financial statements and audit report: noise (unintentional error), bias, and fineness (degree of informativeness). Reporting materiality gives users better information about the relative quality of the financial statements, increasing the efficiency of the market (Fisher 1990).

While appreciative of Fisher's study, a discussion piece by a practicing audit partner (Jackson 1990) was also critical on a number of issues. First, Jackson noted that dividends in the Fisher study were a step function of income. As a result, supposedly immaterial errors could push the dividend policy up or down one step. The example Jackson gave was that a $1 change in income from

$60 to $61 resulted in a 40% increase in dividends, yet materiality thresholds in the study were set at $3 and $6. Jackson noted that most auditors, if they knew of such a dividend function would reduce their materiality decisions accordingly (Jackson 1990). The second major criticism was that the Fisher study contained an internal conceptual contradiction from the outset. The study was set up in such a way that Fisher was looking for a market affect caused by a supposedly immaterial disclosure, but by all user-centered definitions of materiality, an error in reported earnings that is large enough to influence market behavior is material (Jackson 1990).

While I understand Jackson's criticism on this front, I have a different take on the situation embodied in the Fisher study. Fisher's research question is whether or not disclosing *auditor determined* materiality levels will affect investors' behavior in the market (Fisher 1990). Jackson seems to implicitly assume that auditors are able to set materiality thresholds that match those of users. Based on the results of the study, I would suggest that Fisher actually tested a special case of her research question, the case where *auditor determined* materiality levels *do not* match users'. Research prior to (Jaedicke 1970; Firth 1979; Jennings et al. 1987) and since (Jennings et al. 1991; Cho et al. 2003) Fisher's study demonstrate that this is a realistic and appropriate scenario to study rather than constituting an internal contradiction. In fact, it seems that disclosure would be most relevant when materiality judgments differ between auditors and users. However, even assuming that auditors and users agree on materiality levels, disclosure of this fact might be expected to move

markets if investors are building their uncertainty about auditor materiality levels into asset prices as part of an information risk premium. In the absence of knowledge about the auditor's materiality level, investors run the risk that their materiality levels differ and that a misstatement considered immaterial by the auditor (but material to the user) in fact exists.

Church et al. (2008) cite a study similar to Fisher's conducted by Davis and reported in an unpublished 2007 working paper. According to Church et al. (2008), in Davis's study public disclosure of materiality is compared to no disclosure with a manipulation for the level of materiality. Similar to Fisher, Davis also finds that investor expectations of firm performance are improved, which improves market efficiency (Church et al. 2008).

Finally, Tuttle et al. (2002) directly test the effect of seeded misstatements corresponding to commonly used auditor materiality thresholds on stock prices determined in an experimental economics setting using a double-auction market. They define common auditor materiality levels both "conservatively" (5% of income and 0.25% of sales) and "liberally" (10% of net income and 0.5% of sales). They find that misstatements within even liberal definitions of materiality have no significant effect on market prices. Only when misstatements are increased to three to five times conventional materiality levels (30% of income and 1.25% of sales) do misstatements significantly affect market prices (Tuttle et al. 2002). The conclusion is that conventional materiality thresholds used by auditors are likely sufficient. The results provide some reassurance that uncorrected misstatements below commonly employed materiality thresholds do

not significantly affect market prices when auditors adhere to them. However, as previously discussed, Wright and Wright (1997) show that auditors sometimes stray when evaluating misstatements. This study provides no reassurance for cases where auditors stray from their own thresholds such as the 47% of waived items above planning materiality levels identified in Wright and Wright (1997). In addition, Tuttle et al. do not explore how far beyond the liberal constructions of materiality auditors can go before they affect market prices, as the gap between 10% of income and 0.5% of sales and 30% of income and 1.25% of sales is not tested. When auditors do stray from conventional levels of materiality it may be particularly important to disclose the ex-post materiality thresholds actually employed in light of Fisher's (1990) findings.

In direct contrast to the results obtained by Tuttle et al., Cho et al. (2003) find significant differences between conventional materiality levels and levels that affect real-world markets. Cho et al. take a market-based approach to identifying users' materiality thresholds with archival data. By examining cumulative abnormal returns (CAR) around earnings surprises and splitting their sample by levels of earnings surprise, they are able to isolate thresholds for three common materiality constructions, percentage of net income, percentage of sales, and percentage of total assets. For example, they look at CAR as a function of the interaction of earnings surprise and an indicator variable for whether the absolute value of the surprise amount is above or below a cutoff percentage of total assets. The regression model with subscripts for firm and year excluded is:

$$CAR = \alpha + \beta_1 SUE^*(Below\_n\%Assets) + \beta_2 SUE^*(Above\_n\%Assets) + \varepsilon$$

Where CAR is the three-day cumulative abnormal return adjusted for market returns and SUE is the earnings surprise measured as the difference between the most recent consensus analyst forecast and actual earnings. Cho et al. continue to reduce *n* until they find an *n* for which β_1 is insignificant but β_2 is significant. This indicates that users' materiality thresholds lie somewhere between the first *n* for which β_1 is insignificant and the last *n* for which both β_1 and β_2 are significant (Cho et al. 2003). According to the authors, the design is intended to guarantee that investors' true materiality thresholds are no higher than those identified by the model. Based on the empirical findings, investors react to low levels of earnings surprises – levels far lower than even conservative auditor materiality conventions. The identified materiality thresholds are between 0.1% and 0.2% of pre-tax income, below 0.01% of sales (depending on the sales measure), and between 0.1% and 0.25% of total assets (Cho et al. 2003). These findings contrast starkly with the Tuttle et al. findings that materiality levels several times larger than even liberal conventions are required before the experimental market reacted significantly.

While studies such as those by Fisher (1990), Tuttle et al. (2002), and Cho et al. (2003) are important in considering the effect of materiality disclosures on market behavior, they do not consider a number of important issues related to publicly disclosing auditors' materiality decisions. For instance, they do not address any changes in investors' materiality judgments caused by the disclosure of auditors' judgments. Nor do they address how investors' perceptions of audit quality might change in light disclosed materiality levels.

However, it is not certain *ex ante* that materiality disclosures will affect investors' materiality judgments. It is possible that investors develop their materiality thresholds based solely on pertinent financial information, which will be unchanged by the auditor's disclosure.

There are reasons to believe that disclosing auditor materiality decisions would be beneficial for users. Materiality decisions affect the amount of information conveyed through the financial statements to users (Lev 1968). For example, when two account balances are aggregated for presentation in the financial statements, information contained in the original accounting records is lost in the aggregation (Lev 1968). Providing users with information about the extent of information loss allows them to better assess the risk associated with a given investment, which in turn increases efficiency in a market setting (Fisher 1990). In addition, disclosing materiality allows the investor some ability to assess the precision and scope of the audit that is ostensibly performed on their behalf. Without knowing what materiality thresholds were used in the preparation of the financial statements and the audit, users cannot determine how much information may have been lost, and as a result, it becomes more difficult for users to hold management, the auditor, and their elected board representatives accountable for reporting and for audit decisions that they may not agree with. It makes sense then that this information loss should be recognized and communicated to users.

Disclosing materiality levels may even be beneficial for auditors when facing litigation because it has been shown to reduce judges' assessments of

auditor liability for uncorrected misstatements, even when the auditor knew about the misstatement (Jennings et al. 1987). Disclosing materiality decisions may also help reduce the expectations gap between users and auditors by tempering users' expectations. The expectations gap has been partially blamed for the large number of lawsuits and judgments against auditors (Porter 1993).

There are also likely to be some adverse consequences associated with disclosing auditor materiality thresholds. Because auditors have been documented to waive adjustments larger than planning materiality (Wright and Wright 1997), acknowledging and disclosing a particular threshold may be problematic for auditors. Also, auditors argue that disclosing a materiality threshold might increase litigation against because any uncorrected or undetected misstatements above a disclosed threshold would be easy targets for lawsuits (PCAOB 2011d).

Beyond litigation concerns, disclosing auditor materiality decisions to users may fundamentally change the operational definition of materiality. As previously described, materiality is currently defined by what matters to users of financial statements. Preparers and auditors are tasked with using judgment to try to approximate what they believe would be material to investors. However, there are good reasons to believe that once auditor materiality judgments are disclosed, users' personal materiality judgments will be affected. This changes the dynamic from a user-centered materiality environment to a situation in which auditors and preparers actually determine materiality and then influence the materiality judgments of users (either intentionally or unintentionally). For

example, Pinsker et al. (2009) find evidence that users anchor on the first qualitative disclosures they read in a list of disclosures. As a result, the later disclosures carry less weight (i.e. are less material) for the users' decisions. This is evidence that users are already influenced by the order of disclosures, and Pinsker et al. (2009) express concern that preparers and auditors could use this to their advantage. Similarly, it is a key hypothesis of experiment two that users will anchor on quantitative materiality disclosures as well. This topic will be addressed further in Chapter 3.

Chapter 3: Theory and Hypothesis Development

Theory

This dissertation will utilize two experiments, each focusing on different theories and predicted effects of audit disclosures on users' perceptions. First, the effect of audit disclosures related to management estimates on users' perceptions of reporting accuracy, audit quality, and risk may be predicted from the application of Attribution Theory (Kelley 1973) and Support Theory (Tversky and Koehler 1994). Second, the explicit or implicit disclosure of the auditor's assessed materiality levels is expected to affect users' materiality judgments due to an anchoring effect (Tversky and Kahneman 1974).

Experiment One: Attribution Theory

Attribution Theory, as described by Kelley is "a theory about how people make causal explanations" (1973, p.107). When we observe certain behavior from a person (e.g. management's conservative reporting choice for a transaction), Attribution Theory attempts to explain whether we will attribute the cause to a property of that person (e.g. management reports conservatively because they are conservative), the situation (e.g. management reports conservatively because standards require it), or a specific combination of the two (e.g. management reports this particular transaction conservatively, though it is not required).

As Kelley describes in his 1973 formulation of Attribution Theory, there are two general cases under which individuals make causal attributions. Case one is

the case in which the person making the causal attribution (observer) can draw conclusions from multiple observations of an event. Case two is the case in which the observer makes a causal attribution from a single instance of an event. Both cases may apply in a financial reporting scenario depending on how the event of interest is defined. For example, if receiving an unqualified audit report is considered the event of interest then observers may be able to review reports for multiple years for a single company. On the other hand, if the observer is interested in an auditor's opinion on a specific unusual transaction (as might be covered in an expanded report), then the observer may only have one instance to consider because unusual transactions, by their very nature, rarely occur for a given company and auditor combination. Case one and case two scenarios have different implications for the process of causal attribution (Kelley 1973).

When observers have multiple observations available, the causal attribution process behaves similarly to an informal assessment of covariance among four factors. Kelley labels these factors as the event, person, entity, and time (1973). The event is the result of the cause that the observer is trying to identify. The person and entity are the actor and the recipient of an action, respectively. Time is represented by multiple instances of the event. A simple example will illustrate these four factors. Consider the following case: "Each time Audit Firm A audited Company B's financial statements, Firm A gave an unqualified opinion." In this case the event is Firm A opining. Firm A is the person, and the entity is the set of financial statements. Time is represented by

multiple observations – Firm A gave B's financials a clean opinion *each time* they were audited.

It is difficult for observers to make causal attributions in such a simple case because of the limited variation and information. The cause of the opinion could be due to a characteristic of the financials (they are fairly presented in accordance with GAAP), of Firm A (all of Firm A's opinions are unqualified), or a combination (Firm A happens to find that B's financial statements are fairly presented in accordance with GAAP). Another potential cause that is ruled out in this case is that Firm A happens to believe the financials are free of material misstatement due to the circumstances at a specific time. This cause is ruled out because Firm A provides a clean opinion *each time* it audits B's financials. If the case is changed such that many auditors give an unqualified opinion on B's financials, observers will generally attribute the cause to a property of the B's financials. Because the unqualified opinion is present regardless of the person and time, the only remaining cause is a property of the financials – they must be presented fairly in accordance with GAAP. Similarly, Firm A – but no other audit firm – provides a clean opinion each time it audits Company B, the clean opinion will be attributed to some characteristic of Firm A because the variation in firm is the only variation that coincides with the variation of the event (a clean opinion *only* occurs when Firm A audits B and not when other auditors audit B). Kelley notes that attribution in case one scenarios is driven by the covariation principle which he states simply as: "An effect is attributed to the one of its possible causes with which, over time, it covaries" (1973).

Attributions in a case two scenario are more complex. While attributions in case one scenarios are driven by the covariation of factors over multiple events, attributions in case two scenarios are driven by the configuration of factors in a single event. So, while the covariation principle is the only principle at work in case one, there are two principles at work in case two attributions, the discounting principle and the augmentation principle (Kelley 1973). The discounting principle as stated by Kelley is as follows: “The role of a given cause in producing a given effect is discounted if other possible causes are also present” (Kelley 1973, p. 113). The augmentation principle can be stated as follows: The role of a given cause in producing a given effect is heightened if inhibitory causes are also present (Kelley 1973).

To illustrate these principles Kelley turns to a study conducted by Thibaut and Riecken published in 1955. Thibaut and Riecken present observers with two scenarios. In the first, a lower status person acts in accordance with the preferences of a higher status person, and the observers are asked to attribute the cause of the behavior. It is possible that the low-status person’s behavior reflects an internal cause (i.e. they genuinely desired to engage in the behavior), or it may be that the behavior reflects an external cause (i.e. the high-status person coerced them into the behavior) or some combination. In the second case, the scenario is reversed and a high-status person acts in accordance with the preferences of a low-status person. In this case only a cause internal to the actor is apparent because the person with lower status cannot coerce the high-status individual. In fact, participants in the study rated the strength of an internal

cause as much weaker in the first scenario than in the second (Thibaut and Riecken 1955). This is consistent with the discounting principle because the observers reduced their attributions to an internal characteristic of the low-status person due to the presence of a potential external influence (the high-status person).

To illustrate the augmentation principle, consider two closely related scenarios not tested by Thibaut and Riecken. In the first, a low-status person acts contrary to the preferences of a high-status person. In the second, a high-status person acts contrary to the preferences of a low-status person. In the first scenario, people are likely to make a stronger attribution to a characteristic internal to the low-status person because the action was contrary to the potential external cause (coercion from the high-status individual). In the second scenario, the attribution to an internal characteristic will be weakened because there is no external cause inhibiting the high-status person. The stronger attribution in the first scenario is consistent with the augmentation principle.

Another principle of attribution theory has been demonstrated by Ajzen (1971) and Eagly and Chaiken (1975). I will refer to it as the expectations principle. The expectations principle is a direct extension of the augmentation principle and can be expressed in two ways: First, the strength of an *ex post* causal attribution to internal characteristics of a person is a negative function of the *a priori* assessed probability of the event based primarily on knowledge of external causes (Ajzen 1971), and second, the strength of a causal attribution to external characteristics is a negative function of the *a priori* assessed probability

of the event based primarily on knowledge of the internal characteristics of the actor (Eagly and Chaiken 1975).

In his experiment, Ajzen (1971) first tells participants about an actor's utility gains from a certain behavior. The participants are asked to give a probability that the actor will engage in the behavior. Participants are then told what action the actor took and are asked to rate the strength of the possible causes. Ajzen finds that the strength of attribution to personal characteristics as opposed to incentives is a negative function of the assessed probability of the action based on knowledge of the actor's incentives. In other words, the less likely an action is judged *a priori* based on external causes, the stronger one's attribution to the actor's personal characteristics *ex post*. Ajzen explains the result in terms of the information provided by the action. When an actor takes a highly probable action (based on the utility of that action) there is no new information in the action itself, only confirmation of expectations. When an actor takes an unexpected action, there appears to be new information for the observer in that action (Ajzen 1971). In order for participants to reconcile the unexpected action to the circumstances, the internal characteristics of the actor must be emphasized. Note that this is consistent with the augmentation principle formulated by Kelley (1973) in that incentives in this case acted as an inhibitory cause.

Eagly and Chaiken's (1975) experiment involved two groups of participants. The first group was exposed to a communicator, but not to the communicator's message. This group rated the attractiveness of the

communicator and the likelihood that they would espouse a set of positions. The second group was exposed to the communicator and to the message containing one of the positions. They then rated the persuasiveness of the message. The theory espoused by Eagly and Chaiken is that the more unexpected the message, the more it would be rated as corresponding to underlying reality, and would thus be more persuasive. This is in fact what they found. When the message was not what participants expected *a priori* based on characteristics of the communicator, they attributed the message to an external cause, the correspondence with underlying facts and circumstances, *ex post*.

Two simple examples will serve to illustrate the expectations principle. Assume the following scenario: *Firm A always gives unqualified opinions to every financial statement they audit.* Because Firm A has always given an unqualified opinion for every financial statement, the expectation is that they will similarly opine on the next set of financial statements they audit. However, if Firm A audits a set of financials and does not give an unqualified opinion, the most likely *ex post* explanation is that the financials are egregiously misstated; this is a strong attribution to an external factor. Now assume the following scenario: *Everyone who has ever audited a certain set of financials has provided an unqualified opinion.* The expectation is that when Firm A audits them it will also provide an unqualified opinion. If Firm A audits the financials and does not provide a clean opinion, the likely *ex post* explanation is that Firm A is either incompetent or is highly competent and identified a misstatement that other audits missed – both are strong attributions to a characteristic of Firm A.

Before developing the hypotheses, it is important to place attribution theory in the context of experiment one's setting. My first experiment focuses on the judgments of financial statement users and how those judgments are affected by the audit disclosure. In this setting, financial statement users are asked to make causal attributions related to auditors, management, and financial reporting decisions. The person and entity from Kelley's framework are the auditor and management's reporting decision. The auditor's agreement or disagreement with management's reporting decision is a particular configuration of the auditor and management's reporting decision. The event is the auditor's unqualified (clean) opinion on the financial statements.

I believe this scenario represents a hybrid of Kelley's case one and case two scenarios as it has aspects of both. Users will be given an audit disclosure that discusses the auditor's agreement with multiple management reporting decisions. In this respect, the user has access to multiple observations. However, the configuration of factors is also important in this setting, similar to a case two scenario. Specifically, there are power and relational dynamics between the auditor and management. For example, management may be able to coerce the auditor into providing a clean opinion (despite disagreement) under threat of firing the auditor. Similarly, the auditor may be able to coerce management into reporting a specified position under threat of a qualified or adverse opinion. Also, each of management's reporting choices can be viewed as unique factors such that the same entity is not present in each of the multiple observations. This is in

contrast to Kelley's descriptions of case one scenarios as multiple observations of the exact same entity and person combination.

Attribution Theory Hypotheses

This experiment focuses on how the judgments of financial statement users are affected by the content of an expanded audit disclosure. Financial statement users make causal attributions related to auditors, management, and financial reporting decisions that are reflected in users' ratings of audit and reporting quality. Audit quality is determined in part by the auditor's competence (ability to detect misstatements) and independence (willingness to appropriately alter the audit opinion in response to detected misstatements) (DeAngelo 1981). Consistent with the principle of covariation, users' perceptions of auditor competence are not expected to vary, because the auditor is demonstrating the ability to detect misstatements equally in all cases (no variance in competence).

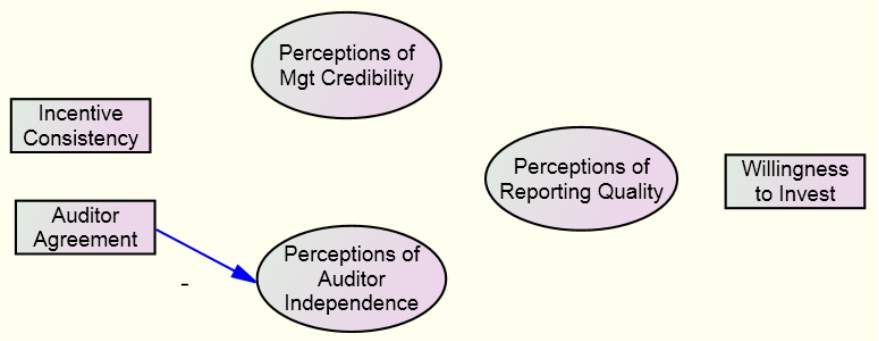
However, users' judgments of auditor independence are expected vary. The auditor and the financial statements are held constant. The event, the auditor's unqualified opinion, is also held constant. Management's specific reporting choices vary as does the auditor's agreement with those choices (configuration). In accordance with the covariation principle, when the auditor both agrees with management's reporting choices and provides a corresponding clean audit opinion, users are expected to attribute the audit opinion to the auditor's agreement with management's reporting choices. This is also consistent with the expectations principle in that users expect a clean opinion when the

auditor agrees with management's reporting choices. However, when the auditor disagrees with management's reporting choices, users would expect the auditor *not* to issue a clean opinion. The event of a clean opinion is unexpected for this configuration of factors, and in accordance with the expectations principle, users are expected to attribute the audit opinion to a property of the auditor – lack of independence.

In this regard, the covariation and expectation principles suggest a positive relation between the auditor's expressed level of agreement with management and users' perceptions of auditor independence in the presence of an unqualified report. Figure 2 shows the constructs included in the model of experiment one. Going forward, each hypothesis described will add links to the model. H1 hypothesizes a positive relation between auditor agreement and users' perceptions of auditor independence, given that a clean opinion is issued.

H1: Users' perception of auditor independence will decrease when the auditor disagrees with management.

Figure 2 – Construct-Level Model with First Hypothesized Link[6]



[6] The link between auditor agreement and perceptions of auditor independence is labeled as negative in Figure 2 due to the fact that auditor agreement is coded as 1= "agree" 2= "disagree".

Hypothesis one is counter-intuitive for many people with knowledge of auditing. Independence concerns are generally raised because stakeholders are worried that the auditor will incorrectly *agree* with management without the proper level of professional skepticism. However, by expanding required audit disclosures, regulators may be inadvertently creating a situation in which expressing *disagreement* with management causes the auditor to appear less independent to users by violating the expectations associated with an unqualified audit opinion.

To understand the significance of H1, it is important to understand two facts about financial statement auditing: First it is possible to issue a clean opinion in spite of a disagreement with one or more of management's reporting choices as long as the effects of the questioned reporting choices are not material individually, or in the aggregate. In this experiment, users are told that the auditor believes a clean opinion is warranted in light of the total audit evidence obtained. Second, independent auditors are to exhibit professional skepticism – that is they neither believe nor disbelieve management assertions without evidence (AU 220, AU 230). An independent auditor opines based on that evidence and should be otherwise uninfluenced by management. Standard setters such as the PCAOB and users are generally worried about a lack of independence when it leads the auditor to overreliance on, and agreement with, management (PCAOB 2011a). Intuitively, an auditor expressing disagreement with management would be viewed as demonstrating independence. In fact, archival research indicates that managers attempt to avoid any auditor reporting

that could be viewed in a negative light (e.g. Hackenbrack and Hogan 2002; Lennox 2005). However, due to the previously described expectations gap, users may not understand that a clean opinion can be rendered in light of disagreements causing a violation of users' expectations. Thus, the auditor is likely to be judged *ex post* as *less* independent for an action that, *a priori* would typically be considered a *demonstration* of independence.

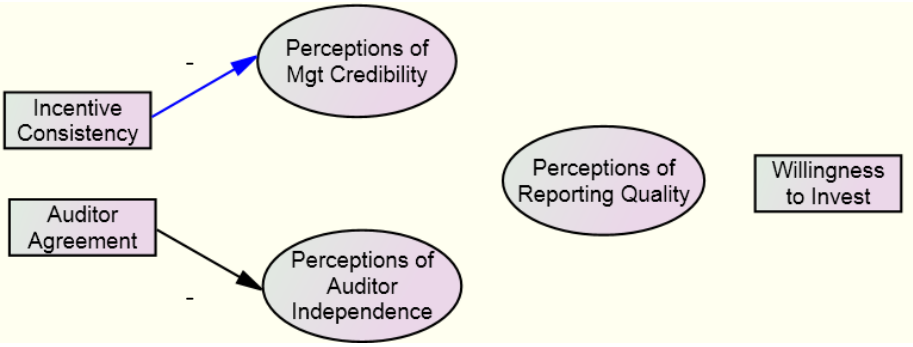
High quality financial reporting should be free from bias (Financial Accounting Standards Board 2010b). The experiment manipulates the consistency of management's reporting choices with their financial incentives (consistent or inconsistent). The covariation principle suggests that when management repeatedly chooses to report consistently with incentives, users will attribute management's reporting choice to management bias rather than properties of the underlying transaction (which does not vary with management's reporting choice). On the other hand, when management repeatedly reports inconsistently with incentives, it is likely to be viewed by users as unexpected behavior. As discussed previously, the expectations principle (Ajzen 1971; Eagly and Chaiken 1975) shows that unexpected behavior is likely to be viewed as caused by external factors (properties of the underlying transaction) when expectations are based on internal characteristics of the actor (management bias). Thus, attribution theory suggests a negative relation between the incentive-consistency of management's reporting choices and users' perception of management credibility, as expressed in hypothesis two.

H2: Users' perception of management credibility will increase as the incentive-consistency of management's reporting choices decreases.

Experiment One: Support Theory

Support theory as postulated by Tversky and Koehler (1994) describes how people subjectively evaluate the probabilities of hypotheses. Specifically, when people are asked to judge the probability of two complementary hypotheses[7], the estimates they give generally add to one (or reasonably close to one). However, studies find that

Figure 3 – Construct-Level Model with Second Hypothesized Link



when outcomes that are nested within one hypothesis are explicitly listed for participants, the probability they assign to each of the nested outcomes adds to more than the probability originally assigned to the parent hypothesis (Tversky and Koehler 1994). For example, Tversky and Koehler (1994) asked participants to assess the likelihood of two competing causes of death: death by a natural cause or death by an unnatural cause. On average, participants estimated the probabilities as 58% and 32%, respectively. However, when participants were

[7] Complementary hypotheses are hypotheses that are mutually exclusive but together are descriptively exhaustive. For example, the probabilities that a football team wins or does not win a game are complementary because they are mutually exclusive and cover all potential outcomes.

asked to assess the probability of death due to heart disease, cancer, or other natural causes (causes all nested within natural causes) the mean assessed probabilities were 22%, 18%, and 33% respectively (sum=73%). The total assessed probability for death by natural causes changed from 58% to 73% when the hypothesis was “unpacked” into specific examples. The implication is that the probability of death by unnatural causes would also have to be reduced to prevent the total probability assigned to death from exceeding 1.0. Tversky and Koehler term this reduction in the complementary hypothesis “subadditivity” (1994).

In explaining Support Theory, Tversky and Koehler (1994) propose that when people assess the probabilities of competing hypotheses, they do so using an availability or representativeness heuristic. In other words, the ease with which a person can think of examples consistent with a hypothesis increases the perceived support for the hypothesis and thus increases its judged probability. Unpacking a hypothesis into specific examples enhances the salience of those possibilities and may identify possibilities that people would not normally consider, thereby increasing total support for the hypothesis. Support theory is robust and has even been shown to hold in samples of experts working within their domain of expertise (Redelmeier et al. 1995). Therefore, it should hold for users evaluating audited financial statements.

Tversky and Koehler measure the effects of support theory with an “unpacking factor” (1994). The unpacking factor is constructed as the total probability assigned to an unpacked hypothesis divided by the probability

assigned to its parent hypothesis. As an example, consider the unpacking factor for the death by natural causes hypothesis explained on page 51. The total unpacked probability of a natural cause of death is 73%. The probability originally assigned to the parent hypothesis is 58%. Dividing 73% by 58% yields the unpacking factor of 1.26. The unpacking factor used in experiment one is further described in the development of hypothesis four.

Support Theory Hypotheses

The audit disclosure's effect on users' perceptions of risk of material misstatement is important. Audits do not result in absolute assurance that the financial statements are free of material misstatements, but rather reasonable assurance (AU 110). Thus, even a clean audit opinion allows for a small probability that the financial statements are misstated. To the extent that users understand this, a clean audit report should result in users holding varying beliefs about the presence of misstatements in the financial statement[8]. At one end of the spectrum is an absolute belief that the financial statements are fairly presented; at the other is the absolute belief that the financial statements are misstated. These varying beliefs imply two complementary hypotheses (fair presentation or misstatement), each with an associated probability.

Traditionally, the independent auditor's report has not provided any *additional* support for one hypothesis or the other beyond the opinion paragraph

[8] Verbal protocol analyses with professional analysts demonstrate that users look to the audit opinion for any indications of misstatement. Analysts looked for three cues: 1) Is the audit opinion present? 2) Is the opinion clean? 3) Is the opinion from a Big 4 auditor? (Coram et al. 2011). In the current audit environment, missing or modified opinions are considered indications of risk, including risk of misstatement.

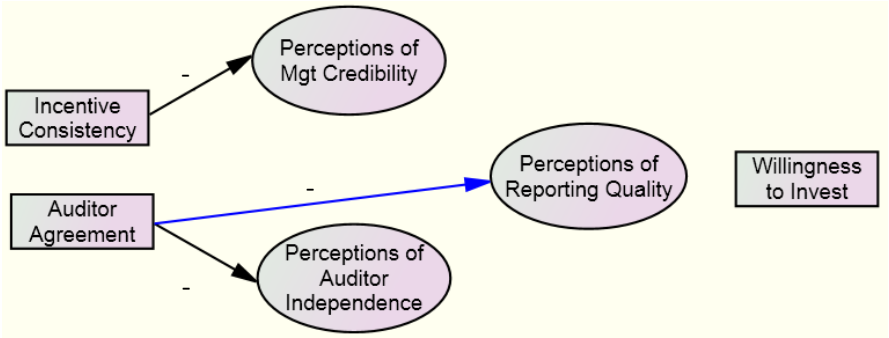
(a simple pass fail audit report model). However, an audit disclosure expressing agreement (disagreement) with specific items in the financial statements can be viewed as "unpacking" instances of the fair presentation (misstatement) hypotheses. One of the tenets of support theory is that "judged probability increases by unpacking the focal hypothesis and decreases by unpacking the alternative hypothesis" (Tversky and Koehler 1994, p. 547). Manipulating the auditor's agreement simultaneously manipulates the hypothesis being unpacked by the auditor's statement – the focal hypothesis (misstatement) in the *disagreement* condition and the alternative hypothesis (fair presentation) in the *agreement* condition. For instance, when the auditor expresses disagreement with management's warranty expense estimate, the auditor has unpacked one specific instance in which the financial statements are misstated, and the overall probability assigned to the misstatement hypothesis should increase. Thus, auditors and management could affect users' perceptions of the financial statements by purposefully unpacking one hypothesis or the other. As a result, a number of closely related perceptions are expected to change as well, such as perceived accuracy, risk, and management and auditor competence. To the extent that users' perceptions and investment decisions are affected by the content of the audit disclosure, expanding the audit disclosure could be said to achieve the regulators' objective of increasing the relevance of the auditor's report.

Support Theory suggests users' perceptions of the likelihood of a material misstatement will change based on the content of the audit disclosure, despite an

unqualified audit opinion and equivalent financial reports. This results in the following hypothesis.

H3: Users' perceived risk of material misstatement will increase (decrease) when the auditor disagrees (agrees) with management's reporting choices.

Figure 4 – Construct-Level Model with Third Hypothesized Link



Support theory also suggests that subadditivity will be present in the participants' risk of material misstatement (RMM) assessments. Tversky and Koehler's *unpacking factor* (1994) is used to detect and quantify subadditivity in responses. For this study, the unpacking factor is defined in terms of the misstatement hypothesis in equation 1:

(1) $UF_i = (RMM\_Asset_i + RMM\_Liability_i) / RMM\_Overall_i$

Where: UF_i *= unpacking factor for participant i*

RMM_Asset_i *= participant i's assessed risk of material misstatement in the asset account*

$RMM\_Liability_i$ *= participant i's assessed risk of material misstatement in the liability account*

$RMM\_Overall_i$ *= participant i's assessed risk of material misstatement anywhere in the financials*

Support theory indicates that the numerator of the ratio will increase (decrease) faster than the denominator as the misstatement (no misstatement)

hypothesis is unpacked, and therefore, UF > 1 (UF<1) indicates subadditivity associated with the misstatement (no misstatement) hypothesis. This results in the following hypothesis:

H4: Auditor disagreement (agreement) creates subadditivity associated with the misstatement (no misstatement) hypothesis such that $UF_{agree} > UF_{control} > UF_{disagree}$.

Perceived Reporting Quality and Investment

According to the Financial Accounting Standards Board's *Conceptual Framework*, financial reports should have the qualitative characteristics of relevance and faithful representation. This study will focus on faithful representation in the construct of perceived reporting quality (RQ)[9]. Faithful representation means that the financial statements are complete, neutral, and free from error (Financial Accounting Standards Board 2010b). Completeness indicates that all material information required for understanding is included in the financial statements (FASB 2010a, QC13); neutral information is "without bias in the selection or presentation of financial information" (FASB 2010a, QC14); and "free from error" indicates that "there are no errors or omissions in the description of the phenomenon" (FASB 2010a, QC15). Perceived RMM in this context is an indication of the perceived likelihood that the financial statements are NOT "free from error." The hypotheses from support theory (H3a and H3b) predict that the level of auditor agreement will only *directly* affect perceived RQ via the perceived RMM (i.e. "free from error" element of faithful representation). However, because

[9] Questions addressing relevance, comparability, and understandability are included in the instrument following the main dependent variable measures. The instrument is intended to hold relevance, comparability, and understandability constant across conditions.

the full experimental model includes a number of indicator variables for all elements of perceived RQ, the statistical test of H3 is conducted in three stages to isolate auditor agreement's affect on perceived RMM (see Section 5 for the detailed statistical analysis).

Perceived management credibility and auditor independence should both have positive relations with perceived RQ because of their effect on neutrality as well as the auditor's role in attesting to completeness and freedom from errors. Furthermore, empirical research results indicate that management credibility and auditor independence are both likely to affect perceptions of reporting quality. Mercer (2005) shows that, in the short-term, incentive inconsistent ("forthright") reporting by management increases investors' perceptions of management credibility (due to positive attributions) and that increased credibility increases reliance on management's disclosures. Mercer's finding that investors rely more on disclosures from credible managers supports the prediction that credibility positively affects perceptions of financial reporting quality. Gaynor et al. (2006) show that experienced audit committee members are willing to sacrifice audit quality to avoid public disclosures that might negatively affect perceived auditor independence, and Dopuch et al. (2003) demonstrate that perceived independence problems deflate market prices, even when those perceptions do not reflect actual independence impairments. The links hypothesized in H5a and H5b as well as H6 (explained below) are shown in Figure Five.

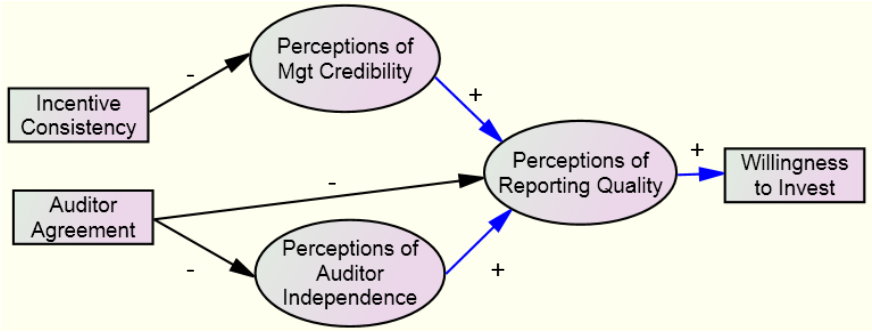
H5a: Users' perceived reporting quality will decrease as perceived management credibility decreases.

H5b: Users' perceived reporting quality will decrease as perceived auditor independence decreases.

One of the primary purposes of financial reporting is to reduce information risk about future cash flows so that users can make informed investment decisions (Financial Accounting Standards Board 2010a). As the perceived quality of that information deteriorates, users' information risk increases. Barton and Mercer (2005) demonstrate that analysts reduce stock valuations when managers have a poor "reporting reputation", which is analogous to poor perceived reporting quality in this experiment. Capital markets research shows that information risk cannot be negated completely through diversification and increases the cost of capital as a result (Easley et al. 2002; Francis et al. 2005). Therefore, as perceived RQ decreases, users' will demand a higher return on investment and willingness to invest (holding expected return constant) will decrease.

H6: Users will invest less as their perceptions of reporting quality decrease.

Figure 5 – Construct-Level Model with Sixth through Eighth Hypothesized Links



Experiment Two: Theory and Hypothesis Development

One of the changes under consideration by standard setters, particularly the Audit Practices Board (APB), is the disclosure of auditor's materiality judgments (APB 2013; EC 2012; IAASB 2012; PCAOB 2011b). Auditors' assessments of materiality have not been made public in the past, and it is unclear what effect doing so will have on investors' judgments and decisions. Auditors' definition of materiality refers to matters that are important to financial statement users (Louwers et al. 2011). Normatively, the concept of what is and is not material should flow from users of financial statements to the auditor (PCAOB 2010a; SEC 1999). However, if auditors disclose their assessed level of materiality to users (either directly or indirectly), the users' judgments of materiality are likely to be affected. The potential arises for auditors to manipulate perceptions of materiality through the expanded disclosures under consideration by the standard setters. On the other hand, investors have requested materiality disclosures in order to have a better framework for evaluating the work of the auditor and the resulting audit opinion (PCAOB 2011). The purpose of experiment two is to determine what effect materiality disclosures will have on investors' materiality judgments and perceptions of audit quality.

The anchoring and adjustment heuristic (Tversky and Kahneman 1974) suggests that disclosure of the auditor's materiality level will act as an anchor for investors' materiality decisions when those decisions are made after exposure to the audit disclosure. In addition, even if the auditor's materiality level is not explicitly stated, the dollar amounts of accounting items discussed by the auditor

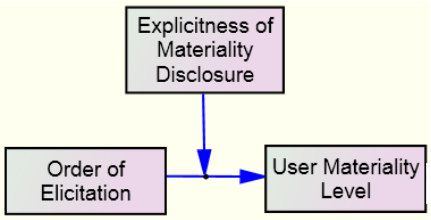
in the audit disclosure may act as an anchor for materiality when users evaluate the financial statements because items of the amount discussed appear to be important to the auditor. Thus, an expanded audit report may affect users' materiality assessments whether or not the auditor explicitly discloses his/her assessed level of materiality. However, if investors establish a materiality level prior to reading the auditor's disclosure, they may be affected less by the disclosure.

The anchoring and adjustment heuristic leads to the following hypotheses regarding the effects of materiality disclosures on investors' materiality perceptions:

H7: Users' materiality judgments will be closer to the auditor's when elicited after reviewing the audit disclosure than before.

RQ1: Will users' materiality judgments be affected by the audit disclosure when materiality is implied as opposed to explicitly stated in the disclosure?

Figure 6 – H7 and RQ1 Depicted at the Construct Level



There is reason to believe that the change in users' materiality levels caused by the disclosure of the auditor's materiality threshold will have additional measurable effects on users' judgments and decisions. Users' materiality thresholds can be viewed as an indication of the precision expected from the financial statements, and the auditor's materiality threshold is viewed as an indication of the level of assurance provided (Mock et al. 2009). If users'

expected levels of precision and the auditor's level of assurance do not match, it seems likely that users would perceive audit quality as low for a number of reasons. For example, if a user's materiality is $10,000 and the auditor reports a materiality threshold of $2,000,000, the user is likely to believe the auditor is not conducting an audit sufficient for the user's needs. If the situation reverses such that the auditor's materiality threshold is substantially lower than the users, the auditor is likely to appear inefficient, unrealistic, or overly conservative.

Social psychology theory provides an additional explanation for the effect of a materiality match (mismatch) increasing (decreasing) perceptions of audit quality. According to Byrne's model of interpersonal attraction and attitude similarity, a close match would trigger positive feelings of validation while a mismatch would trigger negative feelings (p.713 Byrne 1961):

> *"Anytime another person offers us validation by indicating that his percepts and concepts are congruent with ours, it constitutes a rewarding interaction, and hence, one element in forming a positive relationship. Any time that another person indicates dissimilarity between our two notions, it constitutes a punishing interaction and thus one element in forming a negative relationship."*

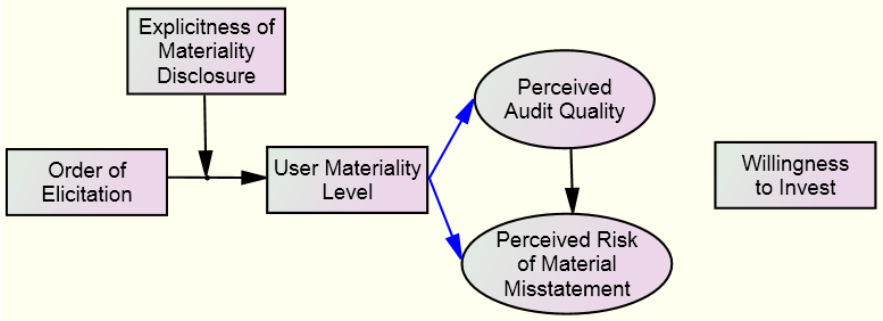
As users' expected levels of precision and the level of assurance come closer together as predicted in H7, users' perceptions of audit quality should increase because the auditor is matching performance expectations. Also, as the level of precision and the level of assurance provided converge, there should be a direct impact on the perceived RMM. I predict that users' perceived RMM will be inversely related to perceived audit quality, and thus perceived audit quality is expected to partially mediate the relation between the materiality disclosure and users' perceived RMM.

H8a: Users' perceptions of audit quality will increase when users' materiality is closer to the auditor's materiality.

H8b: Users' perceived risk of material misstatement will decrease when users' materiality is closer to the auditor's materiality.

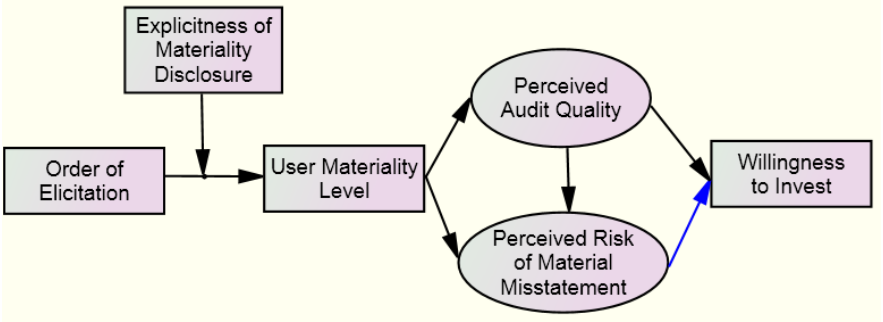
Based on the logic that perceived investment risk increases with perceived RMM and decreases as perceived audit quality increases, I expect that users' willingness to invest in the company will be inversely related to their perceived RMM.

Figure 7 – Construct-Level Model with H8(a) and H8(b) Included



H9: Users' willingness to invest will increase when users' materiality is closer to the auditor's materiality.

Figure 8 - Construct-Level Model with H9 Included



Jennings et al. (1991) show that judges decrease auditor liability assessments for known misstatements when the auditor's materiality level is disclosed, indicating increased acceptance of the auditor's materiality level. I expect users' perceived audit quality to decrease in light of known misstatements (H10a). However, the effect of changes to users' materiality levels on the decrease in perceived audit quality depends on the predominant direction of the changes. If users' uninfluenced materiality levels tend to be below (above) that of auditors, the misstatement will appear material (immaterial), and thus more (less) severe; an audit disclosure will bring materiality judgments closer to the auditor's level decreasing (increasing) the perceived severity of the misstatement (see Figure 9 on the following page). Therefore, users' uninfluenced materiality judgments relative to auditor materiality in the case will determine whether audit quality is judged to be higher or lower given a known misstatement, and, as a result, H10b is stated in the null form.

H10a: Users' perceptions of audit quality will decrease after exposure to known misstatements.

H10b: The distance between users' and auditors' materiality will have no effect on users' perceptions of audit quality after exposure to known misstatements.

The perceived severity of the misstatement and perceived audit quality after exposure to the misstatement are expected to influence users' investment choice and willingness to hold the auditor liable for the misstatement

Figure 9 – The Sign-Dependent Effects of User Materiality Changes

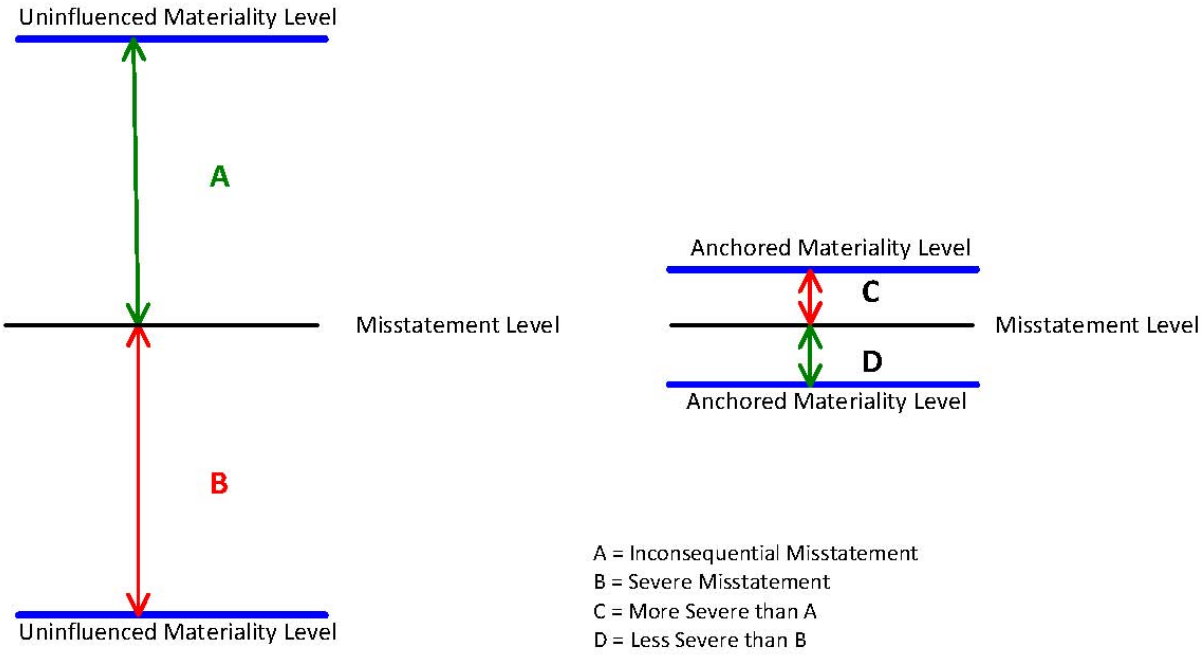
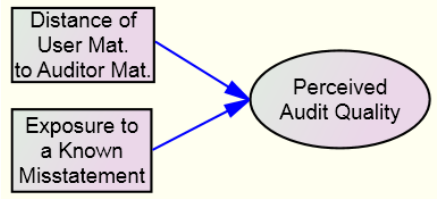


Figure 10 – Construct-Level Depiction of H10a and H10b



(Kadous 2000). However, because the directional effect of anchoring on users' perceived audit quality after exposure to a misstatement is unknown I cannot make a directional prediction for the effect of anchoring on users' judgments of auditor liability. Furthermore, research shows that perceptions of audit quality do not affect liability judgments in the presence of severe misstatements, but do in the presence of more moderate misstatements (Kadous 2000). Therefore, users' liability judgments are addressed with a research question.

RQ2: Will the auditor's materiality disclosure affect users' liability judgments for known misstatements below materiality?

Chapter 4: Methods

Experiment One: Participants

Experiment one and two use non-professional investors (experiment two) or proxies for non-professional investors (experiment one). There are two primary reasons for using MBA students as opposed to professional investors, analysts, or students. First, conceptually, materiality is defined in terms of a reasonable investor. As Hicks (1964) notes, the reasonable investor is likely a lower threshold of knowledge and sophistication than would be encountered in professional investors or analysts. Also, some of the predictions from attribution theory rely on users having an expectation of typical management incentives and behavior. Non-professional investors are likely to have developed these expectations. Second, from a practical standpoint, non-professional investors are more readily available than professional investors or analysts.

In experiment one MBA students from a major land-grant university proxy for non-professional investors. Elliot et al. (2007) find that MBA students can be good proxies for non-professional investors in tasks that do not involve a high degree of integrative complexity. The tasks in this study are not high in integrative complexity. Also, the predictions from attribution theory rely on users having an expectation of typical management incentives and behavior. The students' accounting coursework –which includes the topic of earnings management – provides them with the background to develop these expectations.

Participants were recruited mid-way through the financial accounting module of a full-time MBA program at a major land-grant university. 80 participants took part in the study resulting in 73 usable responses; seven participants failed at least one comprehension or manipulation check and are not considered in the remaining analysis. Participant demographics are reported in Table 1. Out of the 73 usable responses, nine were from participants with a background in accounting or finance (defined as having an undergraduate major of accounting, finance, or financial management or a career in accounting or finance). The participants ranged in age from 20 to 31 years old, with a mean of 24 years. They reported having a mean (median) of 2.76 (2.00) accounting courses. The participants provided the approximate value of their equity holdings as of June 30, 2012 (15 days prior to the experiment) by selecting either zero, or one of five ranges representing investment values of $1 to more than $100,000. The full range of available responses is represented in the sample. Using the lowest number in each response range, the mean value of equity holdings among the participants is $9,316. The mean value increases to $14,590 using the midpoint of the response ranges. This suggests that the participants have experience managing small equity portfolios.

I tested mean differences among conditions for the demographic variables age, lower bound of equity holdings, midpoint of equity holdings, and number of accounting courses. None of these demographic variables differed significantly among conditions at the 0.05 level. Number of accounting courses was marginally significant ($p=0.06$). Further investigation showed that there was a

significant difference in the number of accounting classes between participants in the agreement, incentive consistent condition and those in the disagreement, incentive inconsistent condition. However, a MANCOVA including the number of accounting classes as a covariate indicates that the number of accounting classes does not significantly affect any of the dependent variables of interest (p values between 0.181 and 0.951).

Experience with financial statements and the auditor's report (number of financial statements reviewed in an average month, frequency of reviewing the financial statements before making an investment, and the frequency of reviewing the auditor's report before making an investment) does not significantly differ among conditions.

Experiment One: Method

The purpose of experiment one is to determine the incremental effect of audit disclosure content[10] after controlling for differences in the financial strength of companies and the presence of an unqualified opinion. This experiment focuses on audit disclosures related to management's accounting estimates for valuing assets and liabilities for several reasons. Both the PCAOB and IAASB indicate that users desire the auditor's views on management's estimates, and both boards are considering requiring such disclosure either directly to investors

[10] The PCAOB Concept Release (2011b) provides an example AD&A with multiple sections covering a variety of topics. This study is only intended to investigate the portion of audit disclosures dealing with disagreements with management and the discussion of significant estimates.

Table 1 – Experiment 1 Participant Variables

Panel A – Demographic Variables by Condition

Cell		Age	Equity Low-Point	Equity Mid-Point	Classes
Control	N	34	34	34	33
	Mean	24.03	10,295	15,883	2.58
	Median	23.00	1	5,001	2.00
	Std. Dev.	2.67	23,930	24,073	2.87
Agree, Inconsistent	N	30	30	30	29
	Mean	24.20	12,001	17,334	4.17
	Median	23.00	1	5,001	2.00
	Std. Dev.	2.63	26,182	27,378	4.38
Agree, Consistent	N	27	27	27	27
	Mean	23.33	8,890	13,890	2.67
	Median	23.00	1	5,001	3.00
	Std. Dev.	2.09	20,817	22,159	2.00
Disagree, Inconsistent	N	26	26	26	26
	Mean	24.15	8,462	12,885	2.42
	Median	23.00	1	5,001	1.00
	Std. Dev.	3.31	19,939	20,889	3.16
Disagree, Consistent	N	29	29	29	29
	Mean	23.55	6,552	12,414	1.97
	Median	23.00	1	5,001	1.00
	Std. Dev.	2.21	13,700	20,205	2.01
Total	N	73	73	73	72
	Mean	23.86	9,316	14,590	2.76
	Median	23.00	1	5,001	2.00
	Std. Dev.	2.60	21,291	22,966	3.07

Age = Age in years.

Equity Low-Point = The lower bound of the participant selected range of equity holdings at June 30, 2012.

Equity Mid-Point = The midpoint of the participant selected range of equity holdings at June 30, 2012.

Classes = The number of accounting courses completed.

Cell – Explained below.

Panel B – Experience Using Financial Statements by Condition

Cell		Financial Statements	Financial Frequency	Audit Report Frequency
Control	N	34	33	30
	Mean	1.03	4.42	3.07
	Median	.50	4.00	3.00
	Std. Dev.	1.40	1.68	2.05
Agree, Inconsistent	N	30	29	27
	Mean	2.37	4.69	3.37
	Median	1.00	5.00	3.00
	Std. Dev.	4.16	1.97	1.98
Agree, Consistent	N	27	25	26
	Mean	1.93	4.80	3.69
	Median	1.00	5.00	3.50
	Std. Dev.	3.01	1.94	2.02
Disagree, Inconsistent	N	26	26	25
	Mean	2.65	4.23	3.08
	Median	1.00	4.50	3.00
	Std. Dev.	5.04	1.84	1.87
Disagree, Consistent	N	29	29	26
	Mean	.52	4.14	3.23
	Median	.00	4.00	3.00
	Std. Dev.	1.02	2.28	2.03
Total	N	73	71	67
	Mean	1.66	4.45	3.28
	Median	1.00	5.00	3.00
	Std. Dev.	3.28	1.93	1.98

Financial Statements = the number of financial statements the participant reviews in an average month.

Financial Frequency = The frequency with which the participant refers to financial statements when making an investment decision reported on a 7-point scale where 1 = "never" and 7 = "always".

Audit Report Frequency = The frequency with which the participant refers to the auditor's report when making investment decisions reported on a 7-point scale where 1 = "never" and 7 = "always".

Cell – Explained below.

(PCAOB 2011b, 2011d; IAASB 2011) or through communication to the audit committee (PCAOB 2011c). The auditor's views regarding management estimates are specifically considered for inclusion in an AD&A in the PCAOB's original concept release (2011a, 13) (emphasis added):

> *"It also could include a discussion of the auditor's views regarding the company's financial statements, such as **management's judgments and estimates**, accounting policies and practices, and difficult or contentious issues, including 'close calls.'"*

Similarly, the IAASB considered the following for disclosure (2011, 9) (emphasis added):

> *1) "The auditor's perspective on key assumptions underlying the judgments that materially affect the financial statements, and **whether those assumptions are at the low, most likely, or high end of the range of possible outcomes**."*
>
> *2) "The methods and the judgments made in **valuing assets and liabilities**."*

Furthermore, the IAASB's example audit report includes a paragraph on management estimates (2012). During a meeting of the PCAOB's Standing Advisory Group, Carcello et al. (2011) presented the results of an Investor Advisory Group survey of large, professional investors showing that 79 percent of respondents believe the auditor should discuss management's significant estimates and judgments, the auditor's assessment of their accuracy, and the basis for that assessment. It was the single most sought after disclosure in the survey.

This study uses a within and between subjects 2x2+1 design in which the participants evaluate financially equivalent companies in pairs. For each pair of companies, participants review background information highlighting

management's reporting incentives, financial statements, a brief description of the make-up and role of an audit committee, and a communication from the auditor to the audit committee regarding two of management's key estimates (referred to as the audit disclosure). The auditor's agreement with management on these two accounting issues is manipulated at two levels (agreement on both items or disagreement on both items), and the consistency with management incentives is manipulated at two levels (consistent and inconsistent). The experiment includes a control group in which the participants are presented with a basic audit disclosure that describes the presence of two management estimates but does not include details of the auditor or management's position.

The two accounting matters discussed in the audit disclosure are an estimate of warranty expense and an estimate of fair value for an investment asset. Both items are subject to a range of possible estimates. In the auditor agreement condition, the value reported by management falls inside the auditor's range. To manipulate consistency with management incentives, the reported value is near the high or low end of the auditor's range. In the auditor disagreement condition, the value reported by management falls outside of the range determined by the auditor. For example, in the agreement, incentive inconsistent condition, warranty expense is reported in the financial statements as $975,000. The acceptable range determined by the auditor and presented in the audit disclosure is between $700,000 and $1,000,000. Thus, the amount is within the auditor's range and is inconsistent with management's incentives for higher net income (net income *decreases* as warranty expense *increases*). In all

cases (other than the control condition), the audit disclosure provides the range for the estimate that the auditor believes is appropriate and management's reported value. In the disagreement (agreement) conditions, the auditor explicitly states that management's reported value is outside (inside) of the preferred range and whether the amount is closer to the high or low end.

After reviewing the financial statements–but before reviewing the audit disclosure–participants provide a preliminary likelihood of material misstatement for the overall financial statements. After reading the audit disclosure, participants assess auditor independence (seven questions), management credibility (five questions), and financial reporting quality (nine questions, four for RMM and five for other aspects of RQ), (all on 7-point scales) and the probability of a material misstatement (0 -100 percent) for three areas (asset valuation, warranty expense, and overall). Factor analysis shows that all measurement items load on their intended factors ($p \leq 0.05$ for all items, factor loadings not tabulated). Cronbach's Alpha is 0.799 or higher for each factor (Table 2). Next, participants allocate a $50,000 investment between the two companies. Finally, participants respond to a series of demographic questions and questions related to their experience using financial statements and auditors' reports.

Table 2 – Confirmatory Factor Analysis for the Four Perception Factors

Factor	Items	Cronbach's Alpha	
		Raw	Standardized
Independence	7	0.839	0.842
Credibility	5	0.799	0.803
Reporting Quality	5	0.874	0.880
Risk of Material Misstatement	4	0.949	0.949

After reading the background information for the case, participants answer a comprehension check to determine whether or not they understand management's incentives. Any participants who fail the manipulation check are given a chance to review the pertinent information and attempt to answer the question again. A similar comprehension check is utilized after the audit disclosure to ensure that participants understand whether management's recorded number falls within the auditor's acceptable range. The complete instrument is included in Appendix B.

Experiment Two: Participants

Participants are 121[11] non-professional investors in the United States recruited using Toluna, an on online survey company. Users voluntarily sign-up for survey invitations from Toluna in order to earn points that can be exchanged for various rewards. Each survey completed pays participants a varying number of points depending on the time required to complete the survey and the difficulty of procuring responses from a particular target population. Third parties contract with Toluna to distribute online surveys to targeted portions of the Toluna user base. The party contracting with Toluna can specify the characteristics of the population they are targeting. Toluna then bases the survey invitations on user demographics collected at the time users sign-up for Toluna. While the survey invitations are sent based on user demographics previously obtained, additional, specific screening questions can be included in a survey. In exchange for

[11] A total of 127 responses were received. Two incomplete responses were removed. Four responses were removed as outliers.

payment from the contracting party, Toluna guarantees a certain number of valid responses to the survey and handles reimbursement of the participants via the point system. Toluna claims over 4 million users worldwide.

For experiment two, invitations to the online instrument were sent to Toluna's U.S. investor panel via e-mail. Respondents who engage in fewer than five individual stock transactions per year (not including mutual fund transactions) or who engage in stock transactions as part of their job description were screened out. Participant demographics are tabulated in Table 3.

Participants appear to be experienced investors, as intended. The mean age is 48, their mean equity holdings are $20,000 - $49,999, and they engage in a mean of 78.8 equity transactions per year representing a mean annual investment of $10,000 - $19,999. Participants are also experienced using financial statements and the auditor's report. The mean number of financial statements referenced per month is 5.5 (66 per year). Participants use the financial statements before making an investment "most of the time" and "sometimes" reference the auditor's report (mean of 65 and 58, respectively, on a 100-point scale with five labels ranging from "Never" at 0 to "Always" at 100). There were no significant differences in demographics among the four conditions (p-values ranging from 0.15 to 0.94, means are not tabulated). Participants took a mean of ten minutes to complete the instrument.

Table 3 – Experiment 2 Participant Demographics

Variable	*N*	*Mean*	*Std. Deviation*
Age	116	48	15.331
Equity Holdings	119	$20,000 – $49,999	N/A
Equity Transactions per Year	121	78.8	106.808
Annual Equity Investment	119	$10,000 – $19,999	N/A
Financial Statements Referenced (per Month)	118	5.5	12.360
Reference the Financial Statements Prior to Investing	121	65 – "Most of the Time"	27.166
Reference the Auditor's Report Prior to Investing	118	58 – "Sometimes"	28.552
Accounting Courses	119	3	3.644

Experiment Two: Method

The study uses a 2x2 between participants design where the order in which participants' materiality judgments are elicited is manipulated at two levels (before or after reviewing the audit disclosure) and the explicitness of the auditor's materiality level is manipulated at two levels (explicitly stated or implied in the audit disclosure). Participants are randomly assigned to one of the four cells by the survey software. In all cells, the participants receive a definition of materiality based on auditing standards in the first paragraph of the audit disclosure.

The instrument captures a number of dependent and control variables. Participants answer three questions assessing their specific, quantitative materiality judgment either before or after the disclosure. In addition, they judge the risk of material misstatement and make an investment allocation in the company. They also answer three, seven-point Likert-scale questions assessing audit quality. Factor analysis shows that all audit quality measurement items load

on the intended factor ($p < 0.001$ for all items, specific factor loadings not tabulated). In addition, Cronbach's Alpha is 0.924 (Table 4).

Table 4 – Confirmatory Factor Analysis for Audit Quality

Factor	Items	Cronbach's Alpha	
		Raw	Standardized
Audit Quality – Pre-Misstatement	3	0.924	0.926
Audit Quality – Post-Misstatement	4	0.939	0.939

Following Jennings et al. (1991), subjects are presented with a subsequently discovered misstatement below the auditor's materiality threshold. A paragraph describing the misstatement, which was known to the auditor (but that is below the auditor's disclosed materiality) is included in all conditions after the initial measurements of materiality, perceived audit quality, risk of material misstatement, etc. Users' perceived audit quality is measured again after exposure to the misstatement. Additionally, the perceived severity of the misstatement is measured, users are given the option to reallocate their investment, and users' judgment of the auditor's liability for the misstatement is measured. The complete instrument is included in Appendix C.

Before beginning the statistical hypothesis tests for experiment two, it is important to define the terminology used hereafter. Recall that the study manipulates the order in which materiality is elicited (before or after the auditor's disclosures) and the explicitness used in the disclosures (explicit or implicit). Accordingly, the four resulting cells are "after-explicit" (AE), "after-implicit" (AI), "before-explicit" (BE), and "before-implicit" (BI). At times it is also necessary to compare cells solely on the order of elicitation variable, resulting in the combined

compare cells solely on the order of elicitation variable, resulting in the combined groups “after” (Ax) and “before” (Bx). Furthermore, to test H7 and RQ1, I calculate a variable (Distance) representing the distance of the participants’ raw materiality responses from the given auditor’s materiality ($300,000) and the misstatement in the case, as defined in Equations two and three.

2) $Distance = |Participant\ Materiality - \$300,000|$

3) $DistanceToMis = Participant\ Materiality - \$250,000$

Chapter 5: Statistical Analysis

Experiment One

Experiment One: Control Variables

Recall from Chapter 3, page 52 that relevance, comparability, and understandability are all aspects of quality financial reporting. The instrument in experiment one is intended to hold the comparability and understandability of the financial statements constant among the conditions. The instrument includes questions addressing the comparability and understandability of both the financial statements, and ANOVAs show that users did not perceive a difference among financial statements on these two variables (see Table 5).

Table 5 - ANOVA for User Ratings of Financial Statement Understandability and Comparability by Cell

Variable	Source	Sum of Squares	df	Mean Square	F	p
Understandability	Between Groups	4.849	4	1.212	0.748	0.561
	Within Groups	228.658	141	1.622		
	Total	233.507	145			
Comparability	Between Groups	4.849	4	1.682	0.769	0.547
	Within Groups	228.658	141	2.186		
	Total	233.507	145			

On the other hand, regulators' stated intention is to increase the relevance and understandability of the audit report, while auditors suggest that expanding auditor reports will decrease comparability among the reports (PCAOB 2011d). ANOVAs show that the audit disclosures in at least one of the five cells differ on relevance, understandability, and comparability (Table 6). Analyses of group differences using both Tukey and Scheffe methods show that the control condition is significantly different than the four experimental conditions for all

three factors (Table 7). Specifically, users find the control condition disclosure significantly *less* useful for their investment decisions than the experimental conditions. However, despite their increased usefulness, users find the experimental conditions more difficult to understand than the control condition. This makes sense because the control condition is shorter and provides less specific information to the user. Finally, in accordance with auditors' objections, users find that audit disclosures are more comparable between companies in the control condition. This makes sense because the disclosures are identical between companies in the control condition. Overall, the expanded audit disclosures appear to trade losses in understandability and comparability for increased usefulness in the investment decision process.

Table 6 – ANOVA for Mean User Ratings of Disclosure Usefulness, Understandability, and Comparability by Cell

Variable	Source	Sum of Squares	df	Mean Square	F	Sig.
Usefulness of Disclosures	Between Groups	22.679	4	5.670	6.510	0.000
	Within Groups	116.702	134	.871		
	Total	139.381	138			
Understandability of Disclosures	Between Groups	39.738	4	9.934	5.601	0.000
	Within Groups	250.105	141	1.774		
	Total	289.842	145			
Comparability of Disclosures	Between Groups	20.263	4	5.066	2.259	0.066
	Within Groups	311.737	139	2.243		
	Total	332.000	143			

Table 7 – Analysis of Homogenous Subsets

Panel A – Disclosure Usefulness

Correction Method	Consistency	Subset for alpha = 0.05		Agreement	Subset for alpha = 0.05	
		1	2		1	2
Tukey HSD	Control	3.17		Control	3.17	
	Inconsistent		3.96	Disagree		4.06
	Consistent		4.22	Agree		4.13
	p-value	**1.00**	**0.40**	**p-value**	**1.000**	**0.93**
Scheffe	Control	3.17		Control	3.17	
	Inconsistent		3.96	Disagree		4.06
	Consistent		4.22	Agree		4.13
	p-value	**1.00**	**0.44**	**p-value**	**1.000**	**0.94**

Panel B – Disclosure Understandability

Correction Method	Consistency	Subset for alpha = 0.05		Agreement	Subset for alpha = 0.05	
		1	2		1	2
Tukey HSD	Inconsistent	2.61		Agree	2.74	
	Consistent	3.05		Disagree	2.93	
	Control		3.94	Control		3.94
	p-value	**0.24**	**1.000**	**p-value**	**0.77**	**1.00**
Scheffe	Inconsistent	2.61		Agree	2.74	
	Consistent	3.05		Disagree	2.93	
	Control		3.94	Control		3.94
	p-value	**0.28**	**1.000**	**p-value**	**0.79**	**1.00**

Panel C – Disclosure Comparability

Correction Method	Consistency	Subset for alpha = 0.05		Agreement	Subset for alpha = 0.05*	
		1	2		1	2
Tukey HSD	Inconsistent	3.00		Control	3.15	
	Consistent	3.31	3.31	Disagree	3.16	
	Control		3.91	Agree		3.91
	p-value	**0.59**	**0.135**	**p-value**	**0.99**	**1.00**
Scheffe	Inconsistent	3.00		Control	3.15	
	Consistent	3.31	3.31	Disagree	3.16	
	Control		3.91	Agree		3.91
	p-value	**0.62**	**0.16**	**p-value**	**0.99**	**1.00**

Experiment One: Hypothesis One

Hypothesis one is tested using a simple ANOVA with auditor agreement (coded as 1 = agreement, 2 = control, 3 = disagreement) as the independent factor and the mean of the seven perceived auditor independence measures as the dependent variable. Hypothesis one predicts that when auditors express agreement (disagreement) with management's reporting choices, users will view the auditor as more (less) independent. The ANOVA (Table 8) shows that auditor agreement significantly affects users' perceptions of auditor independence ($F_{(2,143)} = 10.033$, $p < 0.001$). Analyses of the cell means using Tukey and Scheffe methods of alpha-error correction both indicate that agreement has a significantly higher mean than the control and disagreement conditions. However, the means of the control and disagreement conditions do not differ. Agreement positively affects perceptions of independence, and this result is confirmed using structural equation modeling (SEM) in the analysis of the subsequent hypotheses (H3, H5, and H6).

Table 8 – ANOVA Results for Perceived Independence

Panel A – Cell Means

Cell	N	Mean
Agree	57	4.97
Control	34	4.21
Disagree	55	4.24

Panel B – Simple ANOVA Results

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	19.115	2	9.557	10.033	0.000
Within Groups	136.219	143	0.953		
Total	155.334	145			

Panel C – Homogenous Subsets

	Agreement	N	Subset for alpha = 0.05	
			1	2
Tukey HSD	Control	34	4.2086	
	Disagree	55	4.2403	
	Agree	57		4.9695
	Sig.		*0.987*	*1.000*
Scheffe	Control	34	4.2086	
	Disagree	55	4.2403	
	Agree	57		4.9695
	Sig.		0.988	1.000

Experiment One: Hypothesis Two

Hypothesis two predicts that when management reports consistently (inconsistently) with incentives, users will perceive management as less (more) credible. Hypothesis two is tested using a simple ANOVA with incentive consistency (coded as 1 = consistent, 2 = control, 3 = inconsistent) as the independent factor and the mean of the five perceived management credibility measures as the dependent variable. The ANOVA (Table 9, Panel B) shows that incentive consistency does not significantly affects users' perceptions of management credibility ($F_{(2,143)}$= 2.041, p = 0.134). However, a planned contrast (coefficients of 1, 0, -1) shows that the order is as predicted ($t_{(143)}$ = -2.020, p = 0.045) (Table 9, Panel C), and a follow-up simple ANOVA (Table 9, Panel D) conducted without the control group shows that perceived credibility is lower (higher) when management's reporting choice is consistent (inconsistent) with incentives ($F_{(1,110)}$ = 3.892, p = 0.051). Finally, a Jonckheere-Terpstra test for order shows that credibility is highest in the inconsistent cell, followed by the

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control and consistent cells, as expected. I interpret the results as support for H2. See further discussion in Chapter 6.

Table 9 – ANOVA Results for Perceived Credibility

Panel A – Cell Means

Cell	N	Mean
Inconsistent	56	4.57
Control	34	4.39
Consistent	56	4.20

Panel B – Simple ANOVA Results

	Sum of Squares	df	Mean Square	F	p
Between Groups	3.771	2	1.886	2.041	0.134
Within Groups	132.131	143	.924		
Total	135.902	145			

Panel C – Planned Contrast Results

Contrast Coefficients			Contrast Results				
Inconsistent	Control	Consistent	Value	Std. Error	t	df	p
-1	0	1	-0.367	0.182	-2.020	143	0.045

Panel D – ANOVA Results for Perceived Credibility (Control Group Removed)

	Sum of Squares	df	Mean Square	F	p
Between Groups	3.771	1	3.771	3.892	0.051
Within Groups	106.581	110	0.969		
Total	110.351	111			

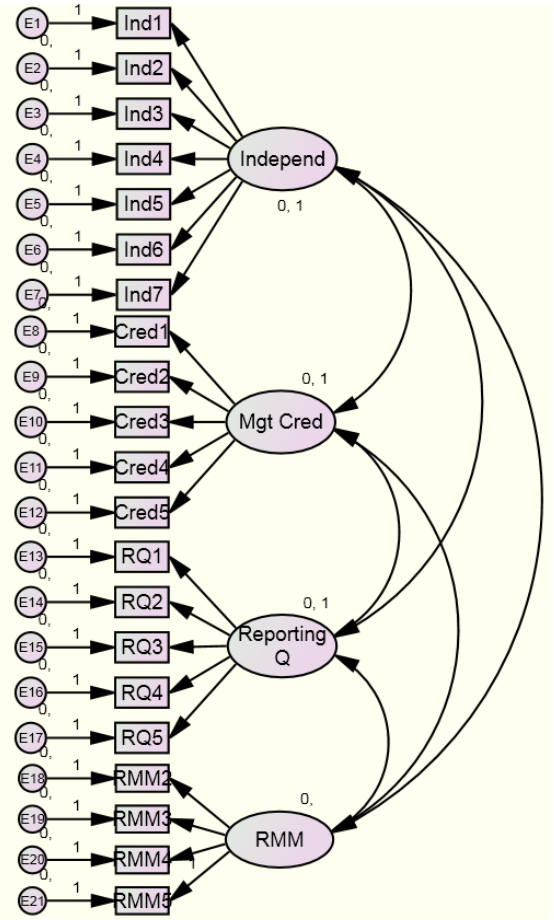
Panel E – Jonckheere-Terpstra Test Results

Number of Cells	3
N	146
Observed J-T Statistic	2,910
Mean J-T Statistic	3,472
Std. Deviation of J-T Statistic	275.428
Std. J-T Statistic	(2.0405)
p (2-tailed)	**0.041**

Experiment One: SEM Model Development

Hypotheses three, five, and six will be tested using SEM. Before doing so, it is important to test the factorial validity of the model that the subsequent SEM will be based upon (Byrne 2010). The model consists of the four perception factors identified in Chapter 4, Table 2, perceived auditor independence, management credibility, financial reporting quality, and risk of material misstatement. Figure 11 shows the model to be tested[12].

Figure 11 – Full SEM Factorial Model



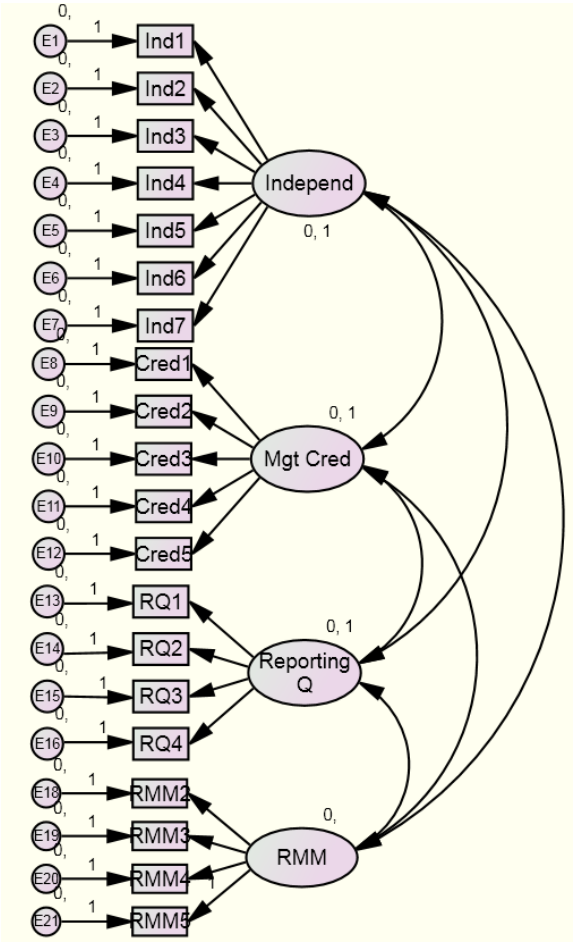
[12] The four factors, perceived auditor independence, management credibility, reporting quality, and risk of material misstatement are correlated as factors of the overall construct of user perceptions of financial reporting. The purpose of this stage of the analysis is to find a theoretical model that fits the observed data well before examining the causal relations among the independent variables, perceptions of financial reporting, and user decisions during the hypothesis testing that follows.

The results of the first analysis show that the model fit is questionable based on typical benchmarks for fit statistics. ($\chi^2_{(183)}$ = 450.320, p < 0.001, CFI = 0.867, RMSEA = 0.100). Typically, the χ^2 should be insignificant, though it is very sensitive to sample size and should be supplemented with additional fit statistics; CFI should be at least 0.9; the RMSEA should be no larger than 0.10, and preferably less than or equal to 0.06 (Byrne 2010). Examining the standardized residual covariance matrix shows eight values (of 210 total) greater than 2.00, all but one of which are associated with one measure of perceived independence (labeled Ind3) and one measure of perceived reporting quality (labeled RQ5). Inspection of the modification indices (Table 10) indicate that the error term associated with RQ5 (labeled E17) should be correlated with the error terms for two indicators, one associated with credibility (error term E12 associated with Cred5) and one associated with independence (error term E7 associated with Ind7). There is no theoretical reason why E17 should be correlated with E12 and E7,therefore the errors will not be correlated in the model (Byrne 2010). Due to the fact that RQ5 has problems indicated by both the standardized residual covariance and the modification indices, it will be removed. The updated model is shown in Figure 12.

Table 10 – Partial List of Modification Indices for the SEM Factorial Model

Item1		Item2	M.I.	Par Change
E12	**<-->**	**E17**	**57.215**	**0.768**
E7	**<-->**	**E17**	**33.085**	**0.676**
E6	<-->	E3	29.301	0.610
E7	<-->	E12	28.001	0.538
E19	<-->	E18	11.808	51.267
E3	<-->	E2	11.428	-0.398

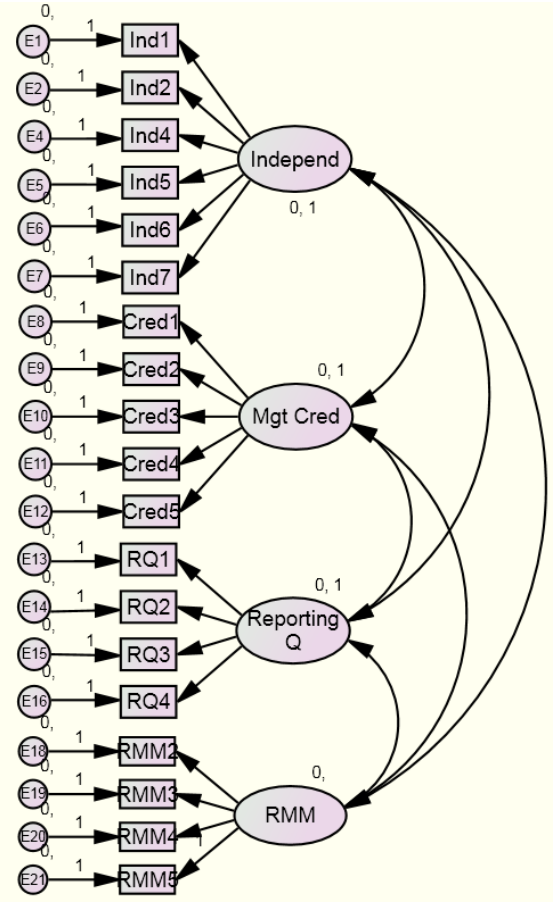
Figure 12 – Modified SEM Factorial Model



The fit statistics for the modified model improve over the original model, but remain marginal ($\chi^2_{(164)}$ = 355.658, p < 0.001, CFI = 0.898, RMSEA = 0.090). The new standardized residual covariance matrix still shows eight standardized residual covariances (of 190 total) larger than 2.00. However, six of the eight are associated with Ind3, indicating that this observed variable may be problematic. Inspecting the modification indices shows that the top modification is associated with the error term (E3) on Ind3. The modification index suggests that E3 should be correlated with the error term (E6) on another independence variable (Ind6).

The questions that comprise Ind3 and Ind6 are very similar[13], so it seems appropriate that their errors should be correlated. However, rather than correlate the errors in the model, I have decided to remove Ind3 because of its redundancy with Ind6 and its problematic standardized residual covariances. The new model is depicted in Figure 13.

Figure 13 - Modified SEM Factorial Model #2



This model fits the data adequately, although the chi-square statistic is still significant, and although below 0.10, the RMSEA is still higher than the more widely accepted cutoff of 0.06 (Byrne 2010) ($\chi^2_{(146)}$ = 296.241, p < 0.001, CFI =

[13] Ind3 reads "Other auditors would reach a different opinion about Company A's financial statements." Ind6 reads "Other auditors would reach the same opinion about Company A's financial statements."

0.916, RMSEA = 0.084). An investigation of the standardized residual covariance matrix now shows just three (of 171 total) residual covariances larger than 2.0, and only one larger than the 2.58 cutoff suggested by Byrne (2010). Inspection of the modification indices (Table 11) shows a number of error terms that should

Table 11 – Partial List of Modification Indices for the Modified SEM Factorial Model #2

Item1		Item2	M.I.	Par Change
E12	**<-->**	**E7**	**29.551**	**0.564**
E13	<-->	RMM	11.974	-4.865
E19	**<-->**	**E18**	**11.754**	**51.11**
E21	**<-->**	**E18**	**9.593**	**-54.888**
E19	**<-->**	**E16**	**9.362**	**-3.216**
E21	<-->	Mgt Cred	8.395	2.373
E14	**<-->**	**E13**	**8.096**	**0.115**

be correlated, but only five of the correlations make theoretical sense. The largest modification index indicates that the error term (E7) on Ind7 and the error term (E12) on Cred5 are correlated. This makes sense because both questions are framed as a direct comparison between Company A and Company B[14], and to the extent the participant has chosen one company as the "better company," it is likely reflected in both direct comparisons. Two of the remaining four theoretically valid modification indices suggest that the error term (E18) associated with RMM2 covaries with the error terms (E19 and E21) associated with RMM3 and RMM5. This makes theoretical sense because the questions are

[14] Ind7 reads "Auditor A is more independent than Auditor B." Cred5 reads "Company A's management is more credible than Company B's management."

nested[15]. Therefore, the errors are correlated in the final model. The modification indices also suggest the error terms (E13 and E14) on RQ1 and RQ2 are correlated[16]. RQ1 measures accuracy, a precursor for reliability, which is measured by RQ2, and due to this theoretical relation, it seems reasonable for the error terms to be correlated. Finally, the modification indices suggest the error terms (E16 and E19) on RMM3 and RQ4 are correlated. Once again, due to the theoretical relation between the questions, it appears reasonable that the error terms are correlated. Figure 14 depicts the final model.

The final model fits the data well ($\chi^2_{(141)} = 211.508$, $p < 0.001$, CFI = 0.961, RMSEA = 0.059). There are only two standardized residual covariances (of 153 total) greater than 2.00 and neither are larger than the 2.58 cutoff suggested by Byrne (2010).

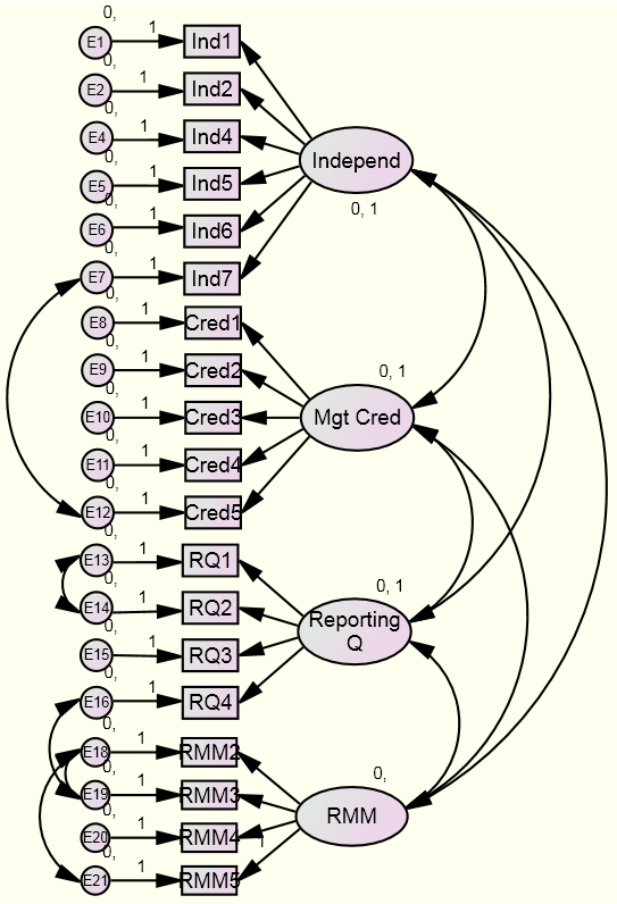
Experiment One: Hypothesis Three

Hypothesis three states that auditor agreement will have an inverse relation with perceived RMM. Furthermore, theory suggests that this may be the only direct affect of auditor agreement on the larger construct of perceived RQ. The statistical test for hypothesis three is conducted in three stages. First, an SEM model is estimated with perceived RQ measured using *only* the RMM indicators from the model in Figure 14, (see Figure 15, Panel A). In this case, the

[15] RMM2 reads "In your opinion, what is the likelihood… that the company's financials contain a misstatement that you would consider important?" RMM3 reads "In your opinion, what is the likelihood… that the company's financial statements contain a misstatement… anywhere in the financials?" RMM5 reads "In your opinion, what is the likelihood… that the company's financial statements contain a misstatement… in the warranty estimate?"

[16] RQ1 reads "The company's financial statements accurately represent their performance." RQ2 reads "The company's financial statements are reliable."

Figure 14 – Final SEM Factorial Model



direct link from auditor agreement to perceived RQ is expected to be significant and negative,[17] which is supported by the results (standardized path coefficient = -0.273, Z = -2.862, p = 0.004). The model fits the data well ($\chi^2_{(40)}$ = 45.684, p = 0.248, CFI = 0.992, RMSEA = 0.036).

Next, the SEM model is estimated with perceived RQ measured using *only* the other RQ indicators in Figure 14 and *omitting* the RMM indicators (see Figure 15, Panel B). In this case, the direct link from auditor agreement to perceived RQ is expected to be insignificant, and the results confirm the

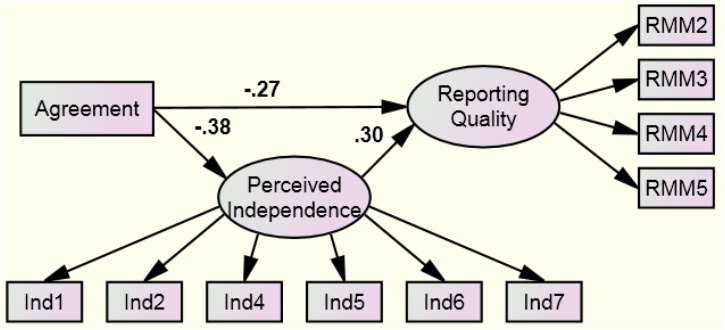
[17] Agreement is coded as 1 = Agree, 2 = Disagree. The indicators of reporting quality are captured as the participant's perceived risk of material misstatement, then recoded by subtracting the values from 100 so that higher values of RMM indicate a lower risk. This creates RMM indicators with the same sign as the other RQ indicators.

prediction (standardized path coefficient = -0.113, Z = -1.333, p = 0.183). Furthermore, the model does not fit the data as well as the RMM model ($\chi^2_{(41)}$ = 57.088, p = 0.049, CFI = 0.972, RMSEA = 0.059).

Finally, the SEM model is estimated including all RQ and RMM indicators shown in Figure 14 (see Figure 15, Panel C). Results indicate that auditor agreement negatively affects overall perceived RQ, as predicted (standardized path coefficient = -0.260, Z = -2.794, p = 0.005), and this effect occurs through the RMM aspect of RQ. A repeated measure ANOVA of participants' pre and post-test assessments of the overall RMM verifies that level of agreement significantly changes individual participants' assessed RMM (F= 10.59, p = 0.002). Additionally, the model in step three does not fit the data well ($\chi^2_{(84)}$ = 198.963, p < 0.001, CFI = 0.898, RMSEA = 0.111), and has fit statistics significantly worse than those obtained when RMM and RQ indicators are separated. Going forward, perceived RMM and RQ will be treated as two separate factors in the SEM analysis.

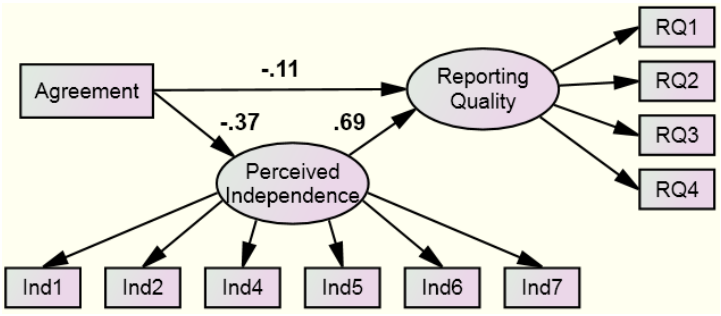
Figure 15 – Three SEM Models for Testing H3[18]

Panel A – Stage 1



[18] SEM models are depicted without error terms from this point forward. Additionally, the only parameters reported in the model diagrams are path coefficients.

Panel B – Stage 2



Panel C – Stage 3

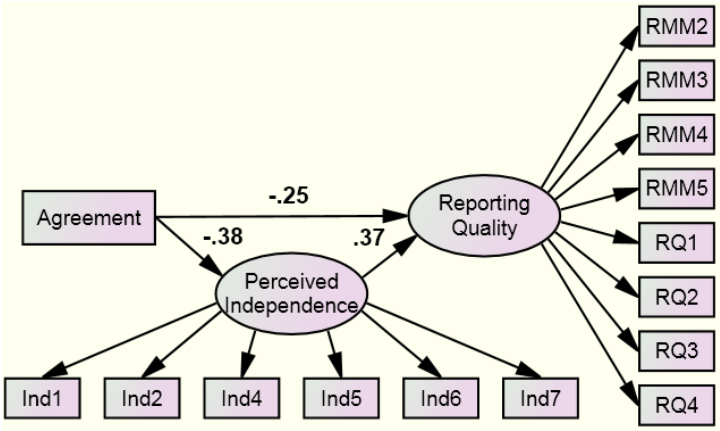


Table 12 – SEM Results of the Three-Step Hypothesis Test

Panel A - Fit Statistics

Step	χ^2	*df*	*p*	*CFI*	*RMSEA*
1	45.684	40	0.248	0.992	0.036
2	57.088	41	0.049	0.972	0.059
3	198.963	84	<0.001	0.898	0.111

Panel B – Parameter Estimates

Step	*Link*	*Standardized Path Coefficient*	*Z-Stat*	*p*
1	Agree → RQ	-0.273	-2.862	0.004
2	Agree → RQ	-0.113	-1.333	0.183
3	Agree → RQ	-0.251	-2.671	0.008

Experiment One: Hypothesis Four

Hypothesis four states that auditor disagreement with management reporting choices will increase subadditivity as measured by the unpacking factor (UF) defined in Equation 1. Overall, participants demonstrated a high level of subadditivity; the mean (median) of UF for all participants is 2.19 (2.00), which is significantly different than 1.0 ($t_{(145)} = 11.767$, $p < 0.001$). It should be noted that merely asking all participants to assess the risk of material misstatement for the financials as a whole as well as for the asset and liability described in the audit disclosure causes a certain degree of unpacking based solely on the structure of the questions (the question frame causes a certain level of unpacking). The important consideration is whether there is *greater* unpacking of the misstatement hypothesis in the disagreement conditions. Indeed, consistent with the prediction in H4, UF is significantly higher in the disagreement conditions (mean = 2.30) than in the agreement conditions (mean = 1.89) ($t_{(110)} = -2.149$, $p = 0.017$, one-tailed), lending support to H4.

Experiment One: Hypothesis Five

Hypothesis five (a) predicts perceived management credibility will positively affect perceived RQ. This hypothesis is tested using the model depicted in Figure 16. Perceived management credibility positively affects perceived RQ (standardized path coefficient = 0.915, $Z = 5.812$, $p < 0.001$), and the results provide support for H5(a). The model fits the data well ($\chi^2_{(33)} = 41.967$, $p = 0.136$, CFI = 0.983, RMSEA = 0.049).

Hypothesis five (b) predicts that perceived auditor independence will positively affect perceived RQ. H5(b) is partially tested in stage two of the H4 testing (see Figure 15 Panel B). The SEM results from Figure 15, Panel B indicate that perceived independence does positively affect perceived RQ (standardized path coefficient = 0.690, Z = 5.482, p < 0.001) (Table 13). However, the results of H5(a) indicate that perceived management credibility also positively affects perceived RQ, and therefore, both H5(a) and H5(b) need to be tested simultaneously with a model that includes both perceptions of management credibility and auditor independence (Figure 17).

Figure 16 – SEM Results for H5(a)

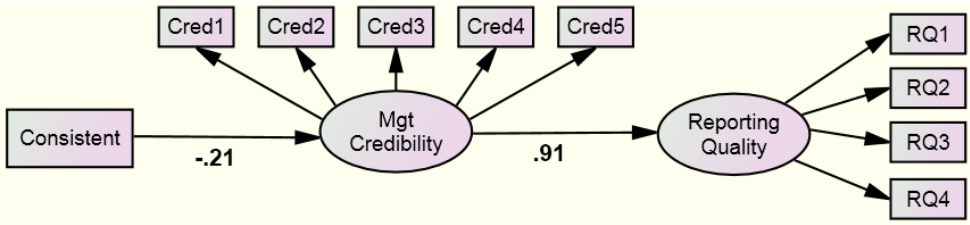
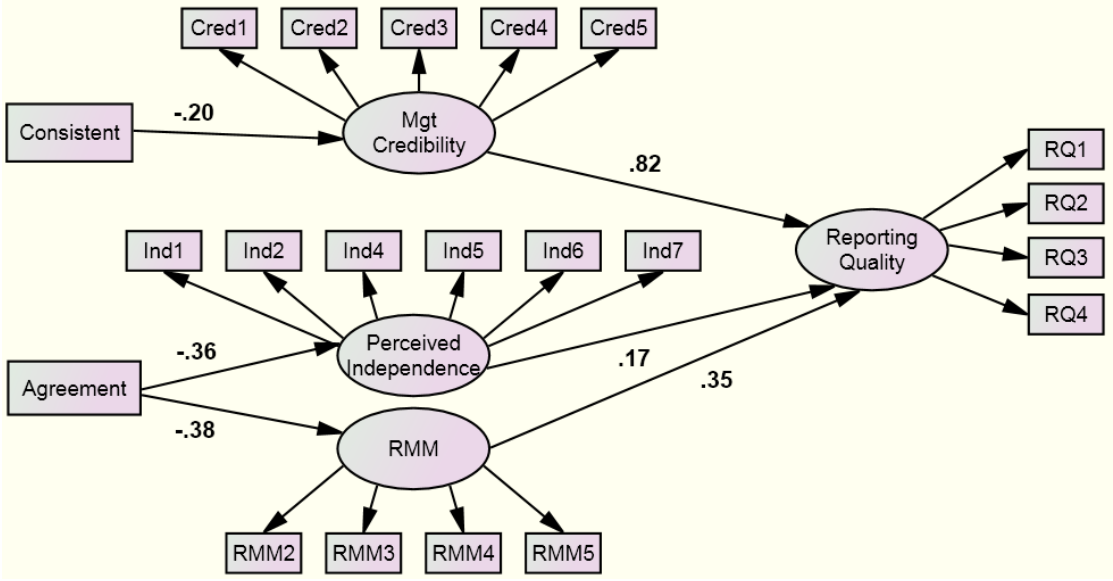


Figure 17 – SEM Results for H5(a) and H5(b)



The SEM results indicate that perceived auditor independence positively affects perceived RQ (standardized path coefficient = 0.166, Z = 2.171, p = 0.015), as does perceived management credibility (standardized path coefficient = 0.816, Z = 5.078, p < 0.001). However, the model fit is questionable ($\chi^2_{(180)}$ = 383.663, p < 0.001, CFI = 0.862, RMSEA = 0.101).

Table 13 – SEM Results for H5(a) and H5(b)

Panel A - Selected Path Coefficients					
Link	*Path Coefficient*	*Stand. Coefficient*	*Stand. Error*	*Z-stat*	*P (one-tailed)*
Agreement --> Independ.	-0.846	-0.364	0.228	-3.716	0.001
Agreement --> RMM	-0.756	-0.38	0.182	-4.145	<0.001
Consistency --> Mgt Cred.	-0.252	-0.198	0.134	-1.885	0.030
Independ. --> RQ	0.119	0.166	0.055	2.171	0.015
RMM --> RQ	0.296	0.355	0.066	4.512	<0.001
Mgt Cred. --> RQ	1.063	0.816	0.209	5.048	<0.001

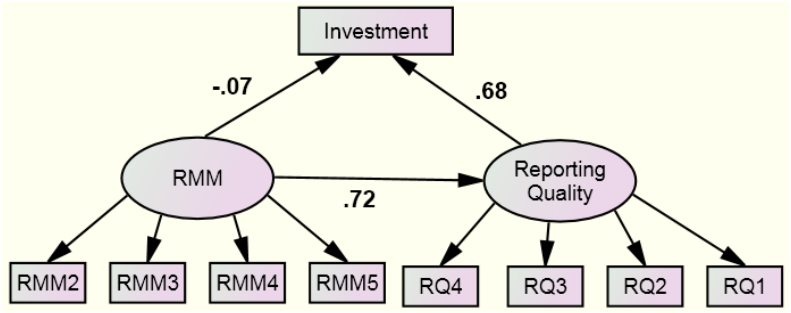
Panel B - Standardized Total Effects					
	Consistency	*Agreement*	*RMM*	*Mgt Credibility*	*Independ.*
RMM	N/A	-0.380	N/A	N/A	N/A
Mgt Cred.	-0.198	N/A	N/A	N/A	N/A
Independ.	N/A	-0.364	N/A	N/A	N/A
RQ	-0.161	-0.195	0.355	0.816	0.166

Experiment One: Hypothesis Six

Hypothesis six predicts that users will invest more as perceived RQ increases. The hypothesis is first tested with the SEM model in Figure 18. Based on the results, RQ positively affects investment amounts (standardized path coefficient = 0.679, Z = 4.556, p< 0.001), but RMM does not directly affect investment (standardized path coefficient = -0.072, Z = -0.549, p = 0.583).

Interestingly, RMM only affects investment indirectly through the other aspects of RQ (total standardized effect = 0.419). The model fits the data well ($\chi^2_{(21)}$ = 30.201, p = 0.088, CFI = 0.989, RMSEA = 0.063). The results provide preliminary support for H6.

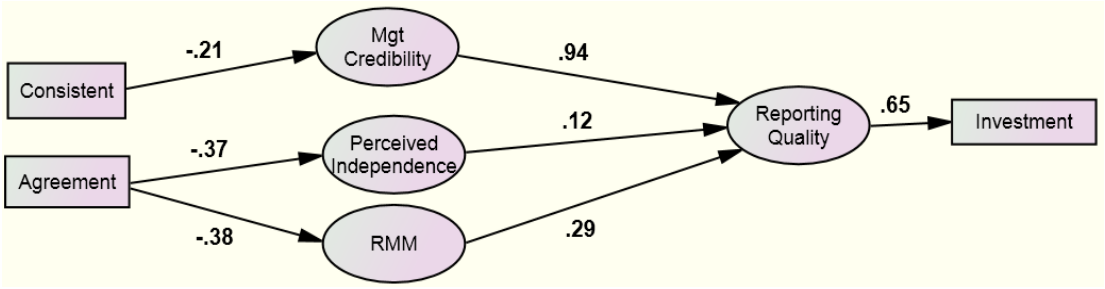
Figure 18 – SEM Results for H6



Testing of H6 within the complete model (Figure 19) shows that perceived RQ positively affects investment. When investment is added to the complete model in Figure 17, the result indicates that perceived RQ positively affects investment as expected (standardized path coefficient = 0.653, Z = 6.581, p < 0.001). However, AMOS estimates a negative variance for the error term (E2) associated with the RQ latent variable, resulting in an inappropriate solution. Estimating the SEM again with the variance for E2 fixed at zero yields an appropriate solution, and the inferences remain unchanged – perceived RQ positively affects investment (standardized path coefficient = 0.648, Z = 6.530, p < 0.001) (Figure 19).

Additional statistical tests (t-tests for mean equivalency) confirm that auditor agreement and incentive consistency affect investment. In total, auditor

Figure 19 – SEM Results for H6 within the Full Model



All indicator and error terms are omitted for clarity.

agreement increases investment by 30% over the control condition ($31,316 compared to $24,165 out of a possible $50,000 allocation, $t_{(89)} = 3.005$, $p = 0.003$). Disagreement decreases investment by 21% compared to the control condition ($18,970 compared to $24,165, $t_{(87)} = -2.022$, $p = 0.046$). Agreement increases investment over the disagreement condition by 65%, a $12,346 increase ($t_{(110)} = 5.541$, $p < 0.001$). Similarly, a simple independent samples t-test shows that users invest 20% ($5,561) less in the incentive consistent cell than in the incentive inconsistent cell ($t_{(110)} = 2.258$, $p = 0.026$).

Experiment Two

Experiment Two: Research Question One and Hypothesis Seven

Hypothesis seven predicts that order directly affects participant's materiality levels. However, based on research question one, it is unclear whether the effect order will hold in the after-implicit cell. Therefore, I begin the analysis by investigating research question one. Two tests investigate RQ1. First, it is necessary to establish whether the means of Distance (distance between participants' materiality and the auditor's materiality) in the after, explicit (AE) and after, implicit (AI) cells are statistically different. If not, the analysis can proceed to comparing the combined after (Ax) and combined before (Bx) cells. If AE and

AI differ on mean Distance, it is still possible that order has a moderated effect in the AI condition. If so, then the mean Distance in AI should be significantly smaller than in the Bx cells.

The mean distance of AE ($220,144) is significantly smaller than the mean distance of AI ($317,217) based on an independent samples t-test ($t_{(64)} = 2.249$, $p = 0.028$) (Table 14, Panel A). The mean distance of AI and Bx ($287,447) are not statistically different ($t_{(78)} = 0.791$, $p = 0.431$) (Table 10, Panel B) Taken together, these results suggest that anchoring does not occur in the AI condition. Therefore, to test H7, I compare the mean distance of AE to the mean distance of the combined AI and Bx cells (Other). The mean distance of AE ($220,114) is significantly smaller than the mean distance of Other ($298,611) ($t_{(114)} = 2.522$, $p = 0.007$) (Table 10, Panel C).

According to the Shapiro-Wilk test for normality (untabulated), the raw participant materiality and Distance variables violate the normal distribution assumption of the t-test for all cells and cell combinations. To check the robustness of the t-test findings, I construct a dummy variable coded as one

Table 14 – RQ1 Statistical Results

Panel A – AE Compared to AI

Cell	N	Mean Distance	Std. Dev.	$t_{(64)}$	p (two-tailed)
AE	36	220,144	136,423	2.249	0.028
AI	30	317,217	211,685		

Panel B – AI Compared to Bx

Cell	N	Mean Distance	Std. Dev.	$t_{(78)}$	p (two-tailed)
AI	30	317,217	211,685	0.791	0.431
Bx	50	287,447	125,485		

Panel C – AE Compared to All Other Cells

Cell	N	Mean Distance	Std. Dev.	$t_{(114)}$	p (one-tailed)
AE	36	220,144	136,423	2.522	0.007
Other	80	298,611	162,563		

when a participant's materiality response is within ±$50,000 of the case materiality ($300,000) and zero otherwise. In the AE cell, 22.2% (8/36) of the observations fall within $50,000 of the case materiality compared to just 3.8% (3/80) of the observations in the other three cells. Both Pearson's Chi-Square ($\chi^2_{(1)} = 9.87$, p = 0.002) and Fisher's Exact Test (p = 0.004) indicate the difference is significant. Neither expanding the range to ± $100,000 nor shortening the range to ± $25,000 changes the statistical inferences (Table 15). Taken together, I interpret the findings as support for the reduced distance predicted in H7, but only when the auditor's materiality level is explicitly stated.

Table 15 – Non-Parametric Results

Cell	*Within 25K*	*Within 50K*	*Within 100K*
AE	3/36 = 8.3%	8/36 = 22.2%	10/36 = 27.8%
Other	0/80 = 0.0%	3/80 = 3.8%	5/80 = 6.3%
Fisher's Exact	**p = 0.028**	**p = 0.002**	**p = 0.001**
Pearson Chi-Square	**p = 0.009**	**p = 0.004**	**p = 0.003**

Experiment Two: Hypothesis Eight

According to H8a, users' perceptions of audit quality will increase when users anchor on the auditor's materiality disclosure. Additionally, the increase in perceived quality should be a function of the distance between the users' materiality and the auditor's, as explained in the build-up to H8a. However,

because Distance is not normally distributed, I construct a new variable in Equation 4, LnDistance, with which to test H8a and H8b.

4) LnDistance = Ln|Participant Materiality – 300,000|

Figure 20 depicts the path analysis model used to test H8a; results are tabulated in Table 16. The model fits the data well ($\chi^2_{(1)}$ = 0.111, p = 0.739, CFI = 1.0, RMSEA = 0.0). The AE cell significantly reduces the distance between participants' materiality levels and that of the auditor (path coefficient = -1.280, Z = -3.218, p = 0.001). Furthermore, as LnDistance decreases (increases), perceived audit quality increases (decreases), as predicted (path coefficient = -1.703, Z = -1.999, p = 0.046), providing support for H8a.

Figure 20 – H8(a) Path Model with Standardized Parameters

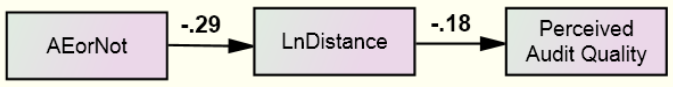


Table 16 – H8(a) Path Analysis Results

Panel A - Fit Statistics

χ^2	*df*	*p*	*CFI*	*RMSEA*
0.111	1	0.739	1.000	0.000

Panel B - Path Coefficients

Link	*Path Coefficient*	*Stand. Coefficient*	*Stand. Error*	*Z*	*p*
AE → LnDistance	-1.280	-0.287	0.398	-3.218	0.001
LnDistance → PAQ	-1.703	-0.183	0.852	-1.999	0.046

Figure 21 depicts the path analysis model used to test H8b. The model fits the data well ($\chi^2_{(2)}$ = 0.120, p = 0.942, CFI = 1.0, RMSEA = 0.0) (Table 17). The statistical inferences for the path from AE through LnDistance to perceived audit

quality remain unchanged. Additionally, LnDistance positively affects perceived risk of material misstatement (path coefficient = 2.606, Z = 2.057, p = 0.001), and perceived audit quality negatively affects the perceived risk of material misstatement (path coefficient = -0.244, Z = -1.827, p = 0.034 (one-tailed)). These findings support H8b.

Figure 21 – H8(b) Path Model with Standardized Parameters

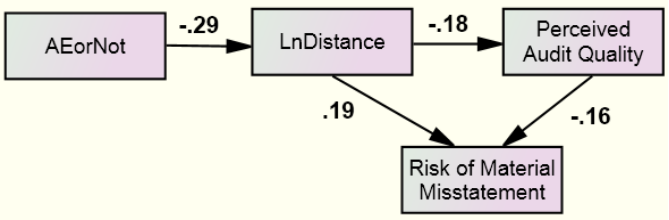


Table 17 – H8(b) Path Analysis Results

Panel A – Fit Statistics				
χ^2	*df*	*p*	*CFI*	*RMSEA*
0.12	2	0.942	1.000	0.000

Panel B – Path Coefficients					
Link	*Path Coefficient*	*Stand. Coefficient*	*Stand. Error*	*Z-stat*	*P(one-tailed)*
AEorNot → LnDistance	-1.282	-0.288	0.397	-3.226	0.001
LnDistance → PAQ	-1.710	-0.184	0.851	-2.009	0.023
PAQ → RMM	-0.244	-0.164	0.134	-1.827	0.034
LnDistance → RMM	2.606	0.187	1.267	2.057	0.020

Experiment Two: Hypothesis Nine

To test H9, I continue to expand the path analysis used to test H8b by adding paths from perceived audit quality and risk of material misstatement to investment (Figure 22). The model continues to fit the data well ($\chi^2_{(4)} = 5.600$, p = 0.231, CFI = 0.932, RMSEA = 0.058) (Table 18). Perceived audit quality

positively affects investment, as expected (path coefficient = 152.108, Z = 2.632, p = 0.008). However, perceived risk of material misstatement has an unexpected positive relation with the amount users choose to invest (path coefficient 89.875, Z = 2.324, p = 0.010). The total effect of the AE cell on investment is negative (-$15.04) due to the unexpected positive relation between RMM and investment. Taken together, the statistical analysis does not provide support for H9.

Figure 22 – H9 Path Model with Standardized Parameters

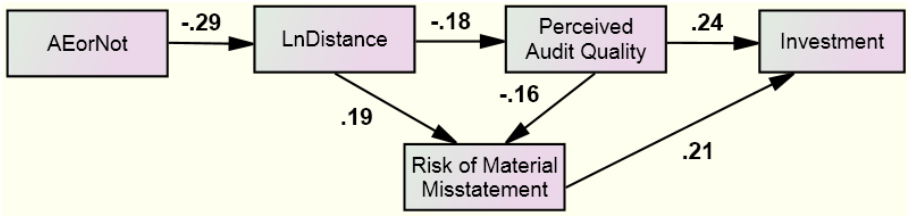


Table 18 – H9 Path Analysis Results

Panel A - Fit Statistics				
χ^2	*df*	*p*	*CFI*	*RMSEA*
5.600	4	0.231	0.932	0.058

Panel B - Path Coefficients					
Link	*Path Coefficient*	*Stand. Coefficient*	*Stand. Error*	*Z*	*P(one-tailed)*
AEorNot → LnDistance	-1.282	-0.288	0.397	-3.226	0.001
LnDistance → PAQ	-1.710	-0.184	0.851	-2.009	0.023
PAQ → RMM	-0.244	-0.164	0.134	-1.827	0.034
LnDistance → RMM	2.606	0.187	1.267	2.057	0.020
RMM → Investment	89.875	0.208	38.681	2.324	0.010
PAQ → Investment	152.108	0.235	57.787	2.632	0.004

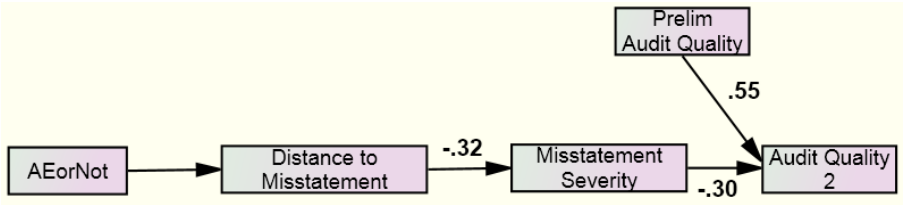
Experiment Two: Hypothesis Ten

H10a predicts that after participants are informed of the known misstatements in the financial statements, perceptions of audit quality will decrease. The mean audit quality rating is 66.1 prior to exposure to the

misstatements and 57.5 after. Repeated measures ANOVA shows that the change is significant ($F_{(1,118)}$ = 17.4, p < 0.001), providing support for H10a. However, the mean of perceived audit quality does not significantly differ between the AE and Other cells (AE = 57.2, Other = 57.6), suggesting that H10b cannot be rejected. Further investigation using path analysis confirms that the explicit materiality disclosure has no effect on perceived audit quality after exposure to the misstatement.

Path analysis does allow for further insights into the process that determines post-misstatement perceptions of audit quality. First, the judged severity of the misstatement and users' preliminary perception of audit quality are both expected to influence post-misstatement perceived audit quality. As previously mentioned, the judged severity of the misstatement is expected to depend on both the magnitude and sign of the distance between users' materiality and the misstatement. Also, the statistical analysis supporting H8a indicates that the AE cell affects users' preliminary perception of audit quality, which provides a second path through which it may affect post-misstatement perceived audit quality. The full path diagram is depicted in Figure 23.

Figure 23 – H10(b) Path Model with Standardized Parameters



Path analysis shows the model in Figure 23 fits the data well ($\chi^2_{(6)}$ = 6.879, p = 0.332, CFI = 0.984, RMSEA = 0.035) (Table 19). The AE condition has no

effect on DistanceToMis (path coefficient = -8,582, Z = -0.154, p = 0.877), and thus has no effect on the perceived severity of the misstatement and post-misstatement perceived audit quality through the path predicted in the development of H10b. DistanceToMis negatively impacts the perceived severity of the misstatement (standardized path coefficient = -0.316, Z = -3.590, p < 0.001). The perceived severity of the misstatement reduces post-misstatement perceived audit quality (path coefficient = -0.277, Z = -4.136, p < 0.001) as expected. Finally, users' original perceptions of audit quality positively affect their post-misstatement perceptions of audit quality (path coefficient = 0.703, Z = 7.772, p < 0.001), also as expected.

Table 19 – H10(b) Path Analysis Results

Panel A - Fit Statistics				
χ^2	*df*	*p*	*CFI*	*RMSEA*
6.879	6	0.332	0.984	0.035

Panel B - Path Coefficients					
Link	*Path Coefficient*	*Stand. Coefficient*	*Stand. Error*	*Z*	*P*
AEorNot → Distance	-8,581.77	-0.014	55,577	-0.154	0.877
Distance → Severity	0.00	-0.316	0.000	-3.590	<0.001
Severity → PAQ 2	-0.24	-0.295	0.067	-4.136	<0.001
PAQ 1 → PAQ 2	152.11	0.554	0.090	7.772	<0.001

While the AE condition does not increase post-misstatement perceived audit quality through the path predicted in the development of H10b, it does significantly increase post-misstatement perceptions of audit quality through its effect on users' preliminary perceptions of audit quality. Figure 24 depicts a simple extension of the path model in Figure 20. This path model fits the data well ($\chi^2_{(3)}$ = 0.382, p = 0.944, CFI = 1.0, RMSEA = 0.0) (Table 20). Perceived

audit quality positively affects post-misstatement perceptions of audit quality (path coefficient = 0.636, Z = 6.589, p < 0.001). The total effect of the AE cell on post-misstatement perceptions of audit quality is positive (1.386), lending practical support to H10b.

Figure 24 – Alternative Path from AE to Post-Misstatement AQ

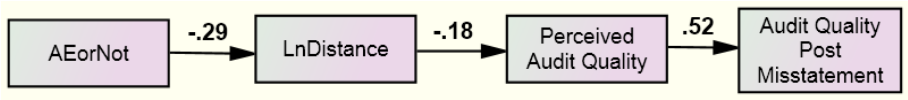


Table 20 – Alternative Path from AE to Post-Misstatement AQ Path Analysis Results

Panel A - Fit Statistics				
χ^2	*df*	*p*	*CFI*	*RMSEA*
0.382	3	0.944	1.000	0.000

Panel B - Path Coefficients					
Link	*Path Coefficient*	*Stand. Coefficient*	*Stand. Error*	*Z*	*P*
AEorNot → LnDistance	-1.280	-0.287	0.398	-3.218	0.001
LnDistance → PAQ 1	-1.703	-0.183	0.852	-1.999	0.046
PAQ 1 → PAQ 2	0.636	0.517	0.097	6.589	<0.001

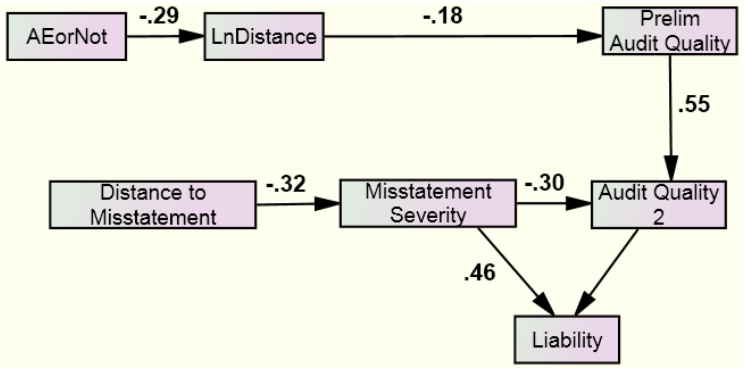
Experiment Two: Research Question Two

RQ2 questions what effect (if any) a materiality disclosure will have on users' liability judgment against the auditor. To examine the effects of the materiality disclosure, the path models from Figures 22 and 23 are combined into the new path model depicted in Figure 25.

The path model fits the data adequately, though the RMSEA is beyond some common thresholds ($\chi^2_{(14)}$ = 21.215, p = 0.096, CFI = 0.929, RMSEA = 0.066) (Table 21) (Byrne 2010). AE does not significantly affect users' liability

assessments because, interestingly, post-misstatement audit quality does not significantly affect liability. The only direct effect on liability is due to the perceived severity of the misstatement (path coefficient = 0.475, Z = 5.467, p < 0.001). From an auditor's perspective, it is somewhat troubling that

Figure 25 – RQ2 Path Analysis Results



post-misstatement perceived audit quality has no effect on users' liability judgments, though it does reflect the acknowledged expectations gap, and gives empirical credence to the notion that liability judgments against auditors may stem, in part, from the expectations gap. However, it should be noted that the materiality disclosure did not make the liability judgments worse in this setting.

Table 21 – RQ2 Path Analysis Results

Panel A - Fit Statistics				
χ^2	*df*	*p*	*CFI*	*RMSEA*
21.215	14	0.096	0.929	0.066

Panel B - Path Coefficients							
Link			*Path Coefficient*	*Stand. Coefficient*	*Stand. Error*	*Z*	*P*
AEorNot	→	LnDist.	-1.280	-0.287	0.398	-3.218	0.001
DistToMis	→	Severity	0.000	-0.316	0.000	-3.589	<0.001
LnDist.	→	PAQ 1	-1.703	-0.183	0.852	-1.999	0.046
Severity	→	PAQ 2	-0.277	-0.295	0.067	-4.136	<0.001
PAQ 1	→	PAQ 2	0.703	0.554	0.090	7.772	<0.001
Severity	→	Liability	0.475	0.465	0.087	5.467	<0.001
PAQ 2	→	Liability	0.007	0.007	0.093	0.077	0.939

Table 22 provides a summary of the hypothesis testing results.

Table 22 – Summary of Hypothesis Testing Results

Hypotheses and Research Questions		Result
H1	Users' perception of auditor independence will decrease when the auditor disagrees with management.	Supported
H2	Users' perception of management credibility will increase as the incentive-consistency of management's reporting choices decreases.	Supported
H3	Users' perceived risk of material misstatement will increase (decrease) when the auditor disagrees (agrees) with management's reporting choices.	Supported
H4	Auditor disagreement (agreement) creates subadditivity associated with the misstatement (no misstatement) hypothesis such that $UF_{agree} > UF_{control} > UF_{disagree}$.	Supported
H5a	Users' perceived reporting quality will decrease as perceived management credibility decreases.	Supported
H5b	Users' perceived reporting quality will decrease as perceived auditor independence decreases.	Supported
H6	Users will invest less as their perceptions of reporting quality decrease.	Supported
RQ1	Will users' materiality judgments be affected by the audit disclosure when materiality is implied as opposed to explicitly stated in the disclosure?	No
H7	Users' materiality judgments will be closer to the auditor's when elicited after reviewing the audit disclosure than before.	Supported*
H8a	Users' perceptions of audit quality will increase when users' materiality is closer to the auditor's materiality.	Supported
H8b	Users' perceived risk of material misstatement will decrease when users' materiality is closer to the auditor's materiality.	Supported
H9	Users' willingness to invest will increase when users' materiality is closer to the auditor's materiality.	Not Supported
H10a	Users' perceptions of audit quality will decrease after exposure to known misstatements.	Supported
H10b	The distance between users' and auditors' materiality will have no effect on users' perceptions of audit quality after exposure to known misstatements.	Supported**
RQ2	Will the auditor's materiality disclosure affect users' liability judgments for known misstatements below materiality?	No

* H7 is supported in the explicit disclosure condition.
** The distance between users' and auditors' materiality thresholds has a negative relation with post-misstatement perceptions of audit quality, but not through the path theoretically predicted in the build-up to H10b.

Chapter 6: Discussion and Conclusions

Experiment One

The purpose of this dissertation as a whole is to investigate the effects of increased audit disclosure on users' perceptions of financial reporting quality, management, and the auditor as well as users' investment-related judgments and decisions. The purpose of experiment one is to determine how audit disclosures related to management estimates affect users' perceptions after controlling for differences in the financial strength of companies and the presence of an unqualified opinion.

Discussion: Experiment One, Auditor Agreement

Auditor agreement appears to be the single most important variable in the audit disclosure in terms of determining investor perceptions and investment. Hypothesis one states that users will perceive auditors as less (more) independent when they disagree (agree) with management given they are provided an unqualified opinion. H1 is supported by the statistical tests. Generally, standard setters and investors are concerned with auditor independence because they worry that the auditor will lose skepticism and fail to *disagree* with management when necessary. This would suggest that concerns about independence would be heightened when the auditor consistently *agrees* with management. Interestingly, the results indicate just the opposite, agreement *increases* perceptions of independence over both the control and disagreement conditions, whereas the disagreement condition does not statistically differ from

the control condition. This implies that there is no downside to expanding disclosures for auditors when it comes to user perceptions of independence. On one hand, expressing agreement with management in light of a clean opinion increases perceived independence, on the other, expressing disagreement does not change perceptions of independence compared to no expression.

The result from hypothesis one is likely counter-intuitive to those familiar with the ongoing debate about auditor independence. Typically, independence problems are perceived to arise when the auditor inappropriately agrees with management, and this finding indicates that because an overwhelming majority of opinions are clean opinions, the auditor only benefits by expressing specific agreement with management estimates. Further work may be necessary to determine whether additional audit disclosures would increase the number of *actual* independence lapses due to the additional incentive to agree with management estimates. Such a finding would certainly be counter to regulators' intentions for expanded auditor reporting.

In addition to its positive effect on perceptions of independence, auditor agreement also positively affects users' judged risk of material misstatement (RMM), and both perceived independence and RMM affect perceptions of reporting quality (RQ). These changes in judgments and perceptions are important because they make a real impact on users' willingness to invest. Furthermore, auditor agreement has a direct, positive effect on users' investments apart from its indirect effects through perceptions of independence, RMM, and RQ. In total, auditor agreement increases investment by 30% over the

control condition ($31,316 compared to $24,165 out of a possible $50,000 allocation). Disagreement decreases investment by 21% compared to the control condition ($18,970 compared to $24,165). Agreement increases investment over the disagreement condition by 65%, a $12,346 increase.

Discussion: Experiment One, Incentive Consistency

Investors have called for auditor reporting regarding management's estimates in part so that investors can see through management bias. Investors want the auditors to report where management's estimates fall within a range so that they can evaluate whether management is being conservative or aggressive (PCAOB 2011b; IAASB 2011). Hypothesis two, which states that users will perceive management as less (more) credible when management reports are consistent (inconsistent) with management's incentives, is generally supported by the statistical tests. Perceptions of management credibility in the experimental conditions do differ from one another and in the predicted direction. The Jonckheere-Terpstra test shows that the conditions are ordered as expected; incentive inconsistent (consistent) reporting produces the highest (lowest) credibility ratings, with the control condition in between. This result is further supported by a planned contrast and an ANOVA directly comparing the incentive consistent and inconsistent cells. The results show that providing additional information on management estimates to users *does* change their opinion of management's reporting credibility. Users appear to see through management's self-serving reporting choices, and there is both an upside and downside for management in that reporting consistently (inconsistently) with incentives

decreases (increases) perceived credibility from the baseline of the control condition.

Furthermore, changes in perceived management credibility positively affect perceptions of RQ, and ultimately, the investment decision. The changes in users' perceptions of management credibility positively affect their perceptions of reporting quality (H5a). Multicollinearity problems between credibility and reporting quality make the relation between user perceptions of management credibility and willingness to invest unclear using SEM. A model that combines reporting quality and management credibility into one factor results in an insignificant path coefficient between incentive consistency and the combined credibility/reporting quality factor. However, a simple independent samples t-test shows a significant investment difference of $5,561 (20%) between the incentive consistent and inconsistent cells. Users invest 20% less in the incentive consistent conditions compared to the incentive inconsistent conditions. The fact that audit disclosures related to management's reporting choices are value-relevant indicates that standard setters' proposals to include these disclosures may achieve their goals of increased transparency and value-relevance. These audit disclosures make management biases more transparent to financial statement users in a meaningful way.

Discussion: Experiment One Control Variables

Examining the financial statement and audit report control variables (relevance, comparability, and understandability) in experiment one also yields

insights. Users find the expanded audit disclosures more useful in the investment decision-making process despite also considering them more difficult to use (harder to compare across companies and more difficult to understand) than a control condition that does not include specific information about management estimates or the auditor's opinion about those estimates.

The apparent trade-off between investment decision usefulness and comparability and understandability is interesting to consider. The usefulness rating in this experiment is specifically tied to the investment decision (see the wording in Appendix A, page 139). The FASB framework states that the primary purpose of external financial reporting is to aid in investment decisions (Financial Accounting Standards Board 2010a), thus if users feel the auditor's report has increased investment decision usefulness, it appears to be a positive change. The reason that comparability across companies is important is due to the fact that investors must allocate limited assets to specific investments. If expanded audit disclosures increase the investment decision usefulness of the auditor's report for each individual investment option, any comparisons between investments would be based on *better* information. This seems likely to compensate for the loss of uniformity in the audit report across companies. Moreover, more sophisticated users may not encounter the same reductions in comparability and understandability as non-professional investors (California Public Employees' Retirement System 2011). Thus, any costs may only accrue to a portion of the user population, while increased usefulness benefits all users.

However, because there is no normative answer to the investment allocation in this experiment, it is impossible to determine with *certainty* whether the overall trade-off between usefulness and comparability and understandability results in *better* investment allocations. My conclusion is that expanded disclosures make the auditor's report more value-relevant and useful, but regulators should consider ways to minimize losses in the areas of comparability and understandability. Future research could examine alternative approaches to expanding disclosures in an effort maximize benefits and minimize costs.

Other measured control variables in experiment one include demographic variables (see Table 1, Panel A) and variables capturing experience using financial statements, experience using audit reports, and investment activity (see Table 1, Panel B). Controlling for these variables does not change the preceding statistical inferences or interpretations.

Limitations of Experiment One

Experiment one has at least four limitations. First, the experiment can only speak to the effects of expanded audit disclosure in the presence of an unqualified opinion. The application of support theory in the build-up to H1 might imply different findings in a setting with a qualified or adverse audit opinion. Constraints on the number and available time of participants limited the experiment to one setting. However, I feel comfortable with the choice of setting, as the vast majority of audit opinions are unqualified, particularly for publicly

traded companies, and that seems unlikely to change even if audit reports are expanded.

Second, I made the choice to use a between and within participants design. The within participants portion of the design allows for more observations (and thus more power) from the same number of participants. It also allowed the participants a point of comparison for reviewing the audit disclosures, which is important when comparing entities based on metrics that are unfamiliar or difficult to evaluate (Hsee 1996). In this case, I expected my participants to be unfamiliar with the expanded audit disclosures because they do not exist in practice. Despite the benefits in this case, within participant designs have been criticized for the potential to cause demand effects (Greenwald 1976) though others suggest this may not occur as often as previously thought (Birnbaum 1999) or may even be of benefit when the researcher is interested in participants' ability to discriminate between treatments, as is the case in this experiment (Greenwald 1976). In this case, I believe the benefits of the within participants portion of the design outweigh the detriments.

Third, the experiment does not compare the proposed audit disclosure with the current audit report, but rather a control that leaves out the agreement and incentive consistency portions of the disclosure. This prevents a *direct* comparison to current practice. However, I believe that such a direct comparison would not be useful *in this experiment* because of the sheer number of variables that would differ between current practice and the proposed audit disclosure. It would be difficult, if not impossible to evaluate the causes of differences in the

dependent variables of interest with such a comparison. Furthermore, any regulatory changes would affect all audit reports falling into a particular category of companies, such as all publicly traded companies in the United States, so testing for the effects of the changes within the proposed report may be more meaningful in practice than testing for differences between current and proposed reports.

Finally, experiment one uses a sample size that is smaller than generally recommended for use in structural equation modeling. However, results from path analysis provide identical inferences and similar path coefficients.

Conclusions: Experiment One

Users are asking regulators to expand the auditor's report. Experiment one examines one of the requested expansions – auditor commentary on management estimates. Financial statement users are capable of using the disclosure, despite the increased effort required, and this is reflected both in self-reports of the usefulness of the disclosure and in the differences in users' perceptions and investment behavior. There appears to be little if any downside to the expanded disclosure for auditors (at least in terms of public perception) as perceptions of independence in the worst experimental case (disagreement while giving a clean opinion) were no different than in the control condition. While work remains to be done in examining the real cost-benefit trade-off of expanded audit disclosures, it appears that expanding disclosures surrounding management

estimates would achieve regulators' goals of increasing the value-relevance and transparency of the auditor's report.

The results described above make a theoretical contribution related to the construct of RQ. Based on the result showing that auditor agreement has an overall effect on perceived RQ – but only through the RMM element of RQ – it appears that participants act as if the risk of material misstatement and the other combined elements of RQ are separate, distinct sub-constructs within overall perceived RQ. This may be important in future research that seeks to measure or investigate perceived RQ.

The results also contribute to the current policy debate. Auditing standards setters have expressly set out to improve the auditor's report by increasing its transparency and value-relevance for users (PCAOB 2011b; IAASB 2012). The experiment provides evidence that the standard setters' proposals – increasing audit disclosure surrounding management estimates – could achieve these goals. While the evidence suggests that users' evaluations of management and the auditor are in fact influenced by increased audit disclosure, it remains a matter of further study as to whether the costs (reduced comparability and ease of use) outweigh the benefits. However, what is clear is that expanded audit disclosures are value-relevant to users' investment decisions. Furthermore, the effects are in the logically expected directions; when auditors express disagreement with management's reporting choices and when management reports in a way that appears self-serving, users invest less.

Finally, the experiment also provides much needed information to help auditors assess the possible impact of current regulatory proposals on users' perception of auditors and their clients. This study provides auditors with evidence that such disclosures can improve users' perceptions of an auditor's independence, which demonstrates that there are benefits in expanded disclosure for auditors as well as users.

Experiment Two

Discussion: Experiment Two, Materiality Disclosure

The purpose of experiment two is to determine how materiality disclosures affect investors' materiality judgments and perceptions of audit quality. Experiment two is intended to be more exploratory in nature than experiment one. In experiment two, the first prediction (that users' materiality will be closer to that of auditors when elicited after users' read the auditor's disclosure) is based on the anchoring and adjustment heuristic. However, anchoring and adjustment is a phenomenon that is typically demonstrated under conditions that are more simplistic than the conditions of experiment two. For example Tversky and Kahneman demonstrated anchoring by having participants spin a rigged roulette wheel and then asking them the percentage of African countries in the United Nations (Tversky and Kahneman 1974). Such an experiment is a very direct assessment of anchoring and adjustment because there are no other numbers involved other than the anchor and the participant's judgment, and the participant likely has no notion of the correct answer. In experiment two, participants in all conditions are exposed to a wide variety of numbers prior to making a materiality

judgment. Specifically, participants view financial statements and an industry description that include numbers ranging from 10 to 10 billion. Furthermore, it is unclear whether participants have an idea of the personal materiality limits that they bring to the experiment. Both of these facts work against finding any effect of anchoring on participants' materiality judgments.

Despite the factors working against finding any anchoring effect, an explicit disclosure of the auditor's materiality threshold significantly changes the number of participants who judge their own materiality as close to the auditor's. While not every participant in the after explicit (AE) cell behaves as if they have anchored on the audit disclosure, a significant number do, enough to statistically reduce the mean distance between the materiality of the AE group and the auditor when compared to the other three cells.

From both a regulatory and accounting theory standpoint, the fact that the audit disclosure moves a non-trivial portion of the participants towards the auditor's materiality level is a problem. As previously discussed, materiality is legally defined as an amount that matters to the investment-related judgments or decisions of a reasonable investor. A user's materiality is an individual decision, historically made independent of the auditor. When the auditor provides a materiality level that affects users' judgments, the practical definition of materiality changes from something that matters to users, to something that matters to auditors. This is particularly problematic because the independent decisions of users and auditors do not match well. When users provided a materiality level prior to exposure to the auditor's level, they gave materiality

levels that were generally much lower than audit materiality. This indicates that a conventional audit materiality level is not sufficient for non-professional investors.

If the change in users' materiality levels had no further effects, it could be considered trivial. However, based on the results of this experiment, the distance between a user's materiality and the auditor's affects important judgments. As the distance decreases, users' perceptions of audit quality increase and perceptions of RMM decrease. Given constant audit quality and financial performance, both of these judgment changes are indicative of users who are willing to take on more risk than they would without the materiality disclosure.

Discussion: Experiment Two, Misstatement Effects

Exposure to misstatements that were known by the auditor understandably reduces users' perceptions of audit quality. However, perceptions of audit quality after the misstatement are higher in the AE cell (by 1.4 points on a seven-point scale) than in the other cells. I interpret this as evidence that the materiality disclosure provides the auditor with some reputational protection in the event of a known misstatement below the disclosed materiality threshold. However, the explicit disclosure of an audit materiality threshold has no effect on participants' willingness to hold the auditor liable for the misstatements. Rather, the liability decision is driven by the perceived severity of the misstatement, which itself is determined by the distance from users' materiality to the misstatement.

Discussion: Experiment Two, Control Variables

Measured control variables in experiment two include demographic variables and variables capturing experience using financial statements, experience using audit reports, and investment activity (see Table 3). Controlling for these variables does not change the preceding statistical inferences or interpretations of the hypothesis tests. However, analyses of the control variables uncovered several significant statistical relations that could be explored in future materiality studies. For example, the amount of participants' annual investment and gender are significant in predicting participants' materiality judgments. Age is significant in predicting perceived audit quality after a misstatement. The frequency with which participants review the financial statements and auditor's report prior to investing are significant in predicting the perceived severity of a misstatement. Finally, gender is significant in predicting users' willingness to hold the auditor liable for known misstatements.

Limitations of Experiment Two

I believe experiment two suffers from a lack of power in detecting investment and liability effects due to the fact that only a portion of the participants in one cell appear to be affected by the auditor's materiality disclosure. Based on the findings, In future experiments, this limitation can be reduced in future experiments by manipulating materiality elicitation at two levels rather than four, with one cell in which materiality is elicited before exposure to an audit materiality disclosure and one cell in which materiality is elicited after exposure to an explicit materiality disclosure.

It also remains unclear why perceived RMM positively affects users' investment levels. In experiment one, RMM negatively affected investment, albeit indirectly. One hypothesis is that the difference may be due to the difference in participants between the studies. The MBA students in experiment one would be expected to better understand the relation between RMM and investment risk. Also, it is possible that the non-professional investors in experiment two are simply risk-seeking in an effort to reap greater potential returns.

Conclusions: Experiment Two

While the explicit disclosure of auditor materiality changed a number of user perceptions, important investment and legal liability decisions were not effected in this experiment. Based *solely* on these results, it appears that regulatory proposals requiring auditors to disclose materiality would have little practical effect. However, as noted above, experiment two is subject to limitations. Also, it has yet to be shown what effect a public materiality disclosure would have on the performance of auditors and management. If a public materiality disclosure affects auditors or managers, it is possible that users would be affected as a result.

Directions for Future Research

Directions for Future Research: Experiment One

Future research could address many of the limitations noted in the preceding discussion. For regulatory reasons, it is important to begin studying the cost-benefit tradeoffs of expanded disclosures, particularly the trade-offs

between comparability and decision relevance and understandability and decision relevance. For the same reasons, it is also important to directly compare regulators' proposed disclosures with the current audit report on the metrics of comparability, understandability, and decision relevance. While expanding audit disclosures appear to meet regulators' goals, it is important to understand whether they do so in a cost-efficient way.

A limitation of experiment one is that it only examines a setting with an unqualified audit opinion. While unqualified opinions comprise the vast majority of public company opinions, qualified opinions, when they occur, are also important. It could be fruitful to examine the effects of auditor agreement across audit opinions; the independence effects would likely reverse in the presence of a qualified or adverse opinion because auditor disagreement with management would no longer conflict with the audit opinion.

Directions for Future Research: Experiment Two

In experiment two, some users in the after-explicit condition appear to anchor on the auditor's disclosure (roughly $^{1}/_{4}$ to $^{1}/_{3}$) while others do not. It would be interesting, and potentially important to standard setters, auditors, and users, to explain how users set materiality and why some are influenced by a disclosure while others are not. Additionally, it is important to understand how disclosing audit materiality will affect auditors and managers. For instance, will auditors attempt to use their ability to influence user materiality limits to their advantage (potentially increasing materiality limits) or will public disclosures cause auditors

to feel more accountable to users (potentially decreasing materiality limits)? Further study of expanded audit disclosures may be fruitful for many years to come, but will be particularly useful in the immediate future as regulators, auditors, users, and preparers continue to debate the merits of expanded audit disclosure.

Appendix A - Glossary

Accounting Acronyms

AD&A.....	Auditor Discussion and Analysis
APB.....	Auditing Practices Board (UK and Ireland), regulator and standard setter
CPA.....	Certified Public Accountant
EC.....	European Commission (European Union), regulator
EPS.....	Earnings per share - calculated by dividing a company's net income less dividends paid to preferred shareholders by the weighted average number of shares of common stock outstanding during the year.
FRC.....	Financial Reporting Council (UK and Ireland), regulator and standard setter
IAASB.....	International Auditing and Assurance Standards Board (International), regulator and standard setter
PCAOB.....	Public Company Accounting Oversight Board (U.S.A.), regulator, standard setter, enforcement

Accounting Terminology

Book/Waive Decision.	A decision the auditor makes regarding the disposition of a material misstatement detected during the audit. The auditor may require the client to adjust the financial statements for the misstatement (book the misstatement) in order to receive an unqualified opinion, or the auditor may choose to issue an unqualified opinion despite the misstatement (waive the misstatement)
Misstatement.....	A violation of correct accounting that may be due to error or intent.

Audit Opinions

Adverse Opinion.....	An audit opinion in which the auditor states that the financial statements are NOT fairly presented in all material respects in accordance with an applicable accounting framework.
Clean Opinion.....	Also an unqualified opinion. An audit opinion in which the auditor states that the financial statements are fairly presented in all material

	respects in accordance with an applicable accounting framework.
Qualified Opinion.....	An audit opinion in which the auditor states that the financial statements are fairly presented in all material respects with one or more exceptions.
Unqualified Opinion...	Also called a "clean opinion." An audit opinion in which the auditor states that the financial statements are fairly presented in all material respects in accordance with an applicable accounting framework.

Cell Acronyms

AE.....	After, explicit cell in experiment two
AI.....	After, implicit cell in experiment two
BE.....	Before, explicit cell in experiment two
BI.....	Before, implicit cell in experiment two
Bx.....	Combined before explicit and implicit cells in experiment two
Other.....	Combined after implicit, before explicit, and before implicit cells in experiment two

Other Acronyms

RMSEA.....	Root Mean Square Error of Approximation - According to Byrne 2010, a cutoff point of 0.06 is generally considered to represent good fit. 0.10 to 0.06 represents adequate fit.
RMM.....	Risk of Material Misstatement
RQ.....	Reporting Quality

Other Terminology

AMOS.....	Structural equation modeling software
Toluna.....	An online survey company that specializes in distributing surveys and providing incentives for valid responses

Appendix B – Instrument: Experiment One

You are being invited to take part in a research study about how financial statement users are affected by audit disclosures because of your recent coursework related to financial accounting. The research is being conducted by Marcus M. Doxey, a PhD student at the University of Kentucky. Mr. Doxey is being supervised by his dissertation chair, Dr. Bob Ramsay, professor of accounting at the University of Kentucky.

Although you will not get personal benefit from taking part in this research study, your responses may help us understand more about audit disclosures and their affect on investors.

We hope to receive completed questionnaires for this segment of the study from about 70 people, so your answers are important to us. Of course, you have a choice about whether or not to complete the questionnaire, but if you do participate, you are free to skip any questions or discontinue at any time.

The questionnaire will take about 15-30 minutes to complete.

You will receive 10 extra credit points towards your MBA 600 course for completing the questionnaire. If you do not want to participate, there is an alternative method of earning the extra credit points. The alternative option is a financial statement analysis project. Please see your instructor for details. Your current grade will not be adversely affected if you choose not to participate.

There are no known risks to participating in this study.

Your response to the questionnaire will be kept confidential to the extent allowed by law. When we write about the study you will not be identified. We will keep private all research records that identify you to the extent allowed by law. However, there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court. Also, we may be required to show information which identifies you to people who need to be sure we have done the research correctly; these would be people from such organizations as the University of Kentucky.

As part of the study, you will be asked fill out an online questionnaire at a website hosted by Qualtrics. Please be aware, while we make every effort to safeguard your data once received from the online survey/data gathering company, given the nature of online surveys, as with anything involving the Internet, we can never guarantee the confidentiality of the data while still on the survey/data gathering company's servers, or while en route to either them or us. It is also possible the raw data collected for research purposes may be used for marketing or reporting purposes by the survey/data gathering company after the research is concluded, depending on the company's Terms of Service and Privacy policies.

If you have questions about the study, please feel free to ask; my contact information is given below. If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428.

Thank you in advance for your assistance with this important project. To ensure your responses will be included, please complete the questionnaire by July 18, 2012.

Sincerely,

Marcus M. Doxey, PhD Candidate
Von Allmen School of Accountancy, University of Kentucky
PHONE: 859-553-2096
E-MAIL: marcus.doxey@uky.edu

Instructions

In the following screens you will be presented with background information, financial statements, and selected disclosures for two companies. Please pay close attention to the information you are provided. After reviewing the information, you will be asked to compare the two companies on a number of dimensions, and eventually you will be asked to make an investment decision related to the companies. You can use the "Previous" button at the bottom of the survey to review information on previous screens if necessary. Also, please note that you will need to have an application capable of opening PDF documents in order to view the financial statements. Thank you for your participation.

Background Information

Both **Company A** and **Company B** design, manufacture, and sell a variety of shopping carts. **Company A** and **Company B** are competitors and both market the carts to consumer retailers in a variety of segments including grocery, department, big box, and home improvement stores. Both **Company A** and **Company B** are very committed to meeting analysts' consensus earnings targets and neither has missed a target in the past four years. Upper management of both companies, including the CEO and CFO, are paid bonuses in cash and stock options for meeting accounting based performance goals, including net income targets. **Company A** has engaged **Auditor A** to perform the annual financial statement audit. **Company B** has engaged **Auditor B** to perform the annual financial statement audit. Both companies received clean audit opinions.

If either **Company A** or **Company B** was required to estimate the value of a financial asset, would it be in the best interest of the CEO to make an estimate near the high or low end of an acceptable range?

- ○ Low
- ○ High

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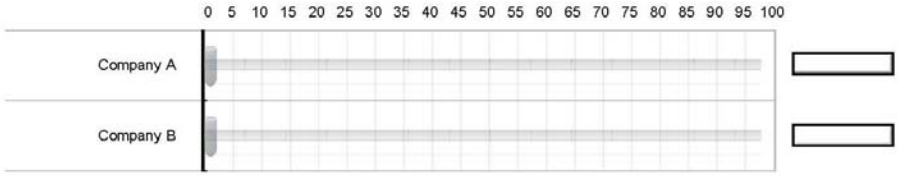
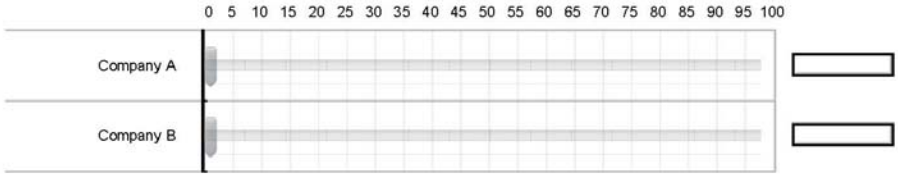
Assume that Company A and Company B have the audited financial statements in the link below. Click the link to download and view the financial statements.

Financial Statements

Answer the following questions for each company.
In your opinion, what is the likelihood (0-100%) that the company's financial statements contain a misstatement that ***you*** would consider important?



In your opinion, what is the likelihood (0-100%) that the company's financial statements contain a misstatement that ***other investors*** would consider important?



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Audit Committee

The audit committee is a group within a company's board of directors that oversees financial reporting and both internal and external auditing. Under current and proposed standards, auditors must communicate certain matters about the audit to the audit committee including information about significant accounting estimates made by management. Under proposed standards, these disclosures must be made prior to the auditor issuing the final audit report.

Auditor's Discussion of Significant Estimates

Financial reporting in accordance with accounting principles generally accepted in the United States of America requires management to make a number of estimates related to future financial outcomes and events. As part of the audit, the auditor compares management's significant estimates to estimates developed by the audit team.

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Auditor A's disclosure to ***Company A's*** Audit Committee related to management's estimates follows.

Auditor's Discussion of Significant Estimates

As part of our audit, we (**Auditor A**) compared **Company A's** significant estimates to estimates developed by the audit team. Two significant estimates related to warranty expense and an asset valuation were discussed with **Company A's** management during the audit. Neither estimate prevented us (**Auditor A**) from issuing a clean audit opinion. Details are provided below:

1.Warranty Expense

- During the year, **Company A** released a new product line that is covered by **Company A's** standard warranty against manufacturer's defects.
- Based on overall industry experience for similar products, we (**Auditor A**) estimated warranty liability for the new product line between **$700,000** and **$1,000,000**.
- Relying on their past experience with other product lines, **Company A's** management estimated and recorded a warranty liability for the new product line of **$975,000**.
- The liability and related expense recorded by **Company A's** management are within our estimated range. However, they are near the high end.

2. Investment Valuation

- As part of its normal cash management practices, **Company A** invested a portion of its cash reserves in debt instruments of an unrelated corporation. These debt instruments are no longer actively traded in the open market as of December 31, 2012.
- Based on the estimates of valuation specialists employed by us, we (**Auditor A**) estimate the fair value of **Company A's** investment to be between **$1,000,000** and **$1,300,000**.
- Based on their internal estimates, **Company A's** management reported the fair value of these assets as **$1,050,000**.
- The asset value recorded by **Company A's** management is within our estimated range. However, it is near the low end.

These estimates, considered along with the results of other audit procedures, did not preclude us (**Auditor A**) from issuing a clean opinion.

Auditor B's disclosure to ***Company B's*** Audit Committee related to management's estimates follows.

Auditor's Discussion of Significant Estimates

As part of our audit, we (**Auditor B**) compared **Company B's** significant estimates to estimates developed by the audit team. Two significant estimates related to warranty expense and an asset valuation were discussed with **Company B's** management during the audit. Neither estimate prevented us (**Auditor B**) from issuing a clean audit opinion. Details are provided below:

1.Warranty Expense

- During the year, **Company B** released a new product line that is covered by **Company B's** standard

warranty against manufacturer's defects.

- Based on overall industry experience for similar products, we (**Auditor B**) estimated warranty liability for the new product line between **$700,000** and **$1,000,000**.
- Relying on their past experience with other product lines, **Company B's** management estimated and recorded a warranty liability for the new product line of **$1,100,000**.
- The liability and related expense recorded by **Company B's** management are larger than our highest estimate.

2. Investment Valuation

- As part of its normal cash management practices, **Company B** invested a portion of its reserves in debt instruments of an unrelated corporation. These debt instruments are no longer actively traded in the open market as of December 31, 2012.
- Based on the estimates of valuation specialists employed by us, we (**Auditor B**) estimate the fair value of **Company B's** investment to be between **$1,000,000** and **$1,300,000**.
- Based on their internal estimates, **Company B's** management reported the fair value of these assets as **$900,000**.
- The asset value recorded by **Company B's** management is smaller than our lowest estimate.

These differences, considered along with the results of other audit procedures, did not preclude us (**Auditor B**) from issuing a clean opinion.

The auditor disclosures are also available to download and review in PDF as you complete the remaining questions.

Auditor Disclosures

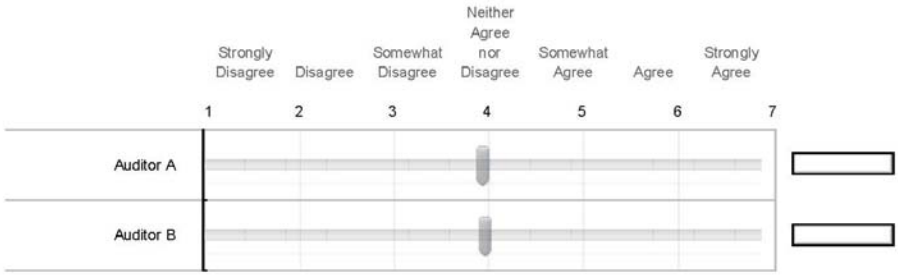
Is **Company A's** warranty estimate within **Auditor A's** suggested range?

- ○ Yes
- ○ No

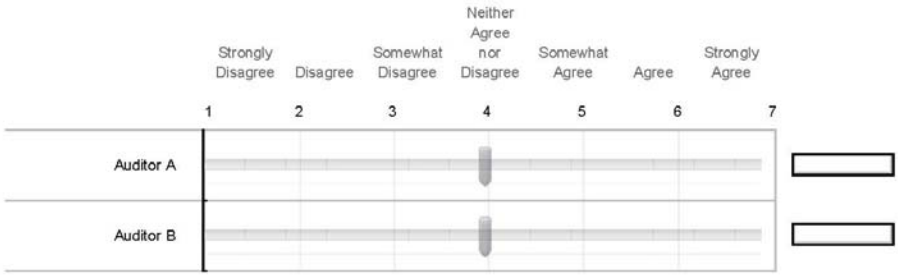
>>

Auditors are expected to maintain independence during an audit. Independence means that the auditors are unbiased and impartial with respect to companies that they audit. Auditors should not be inappropriately influenced by the company's management.
Please respond to the following statements on a scale of 1-7, with 1 being "strongly disagree" and 7 being "strongly agree" for both Auditor A and Auditor B.

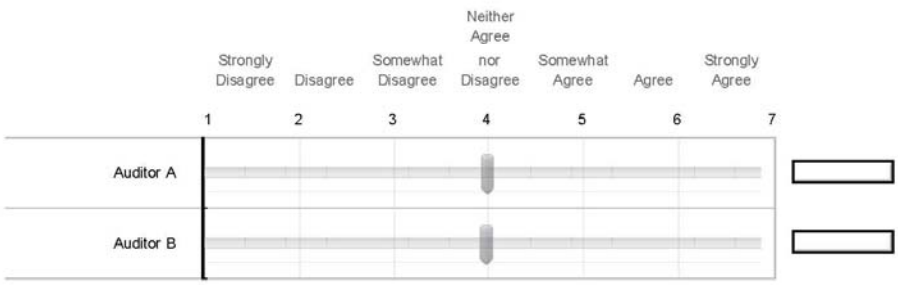
The auditor acted independently of the company's management when deciding to give a clean audit opinion.



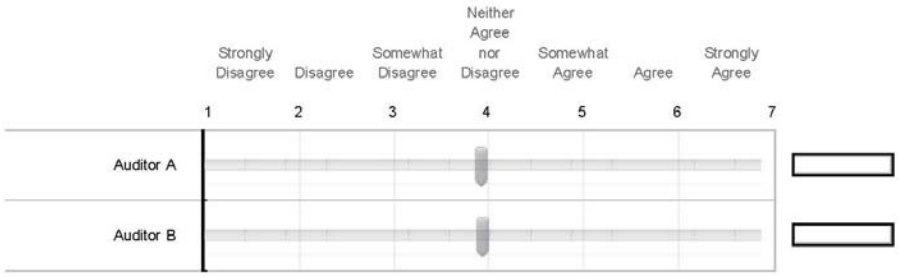
The auditor is more independent than most other auditors.



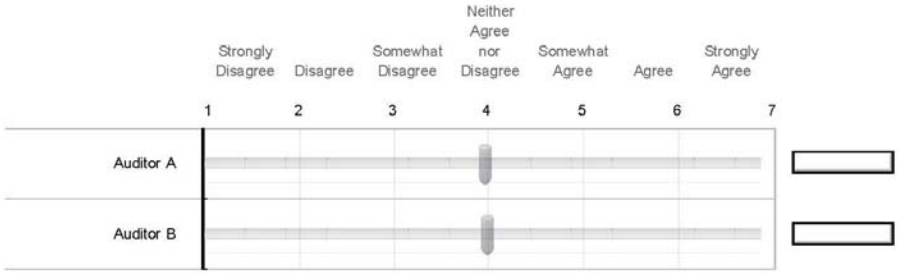
Other auditors would give a different audit opinion on the financial statements.



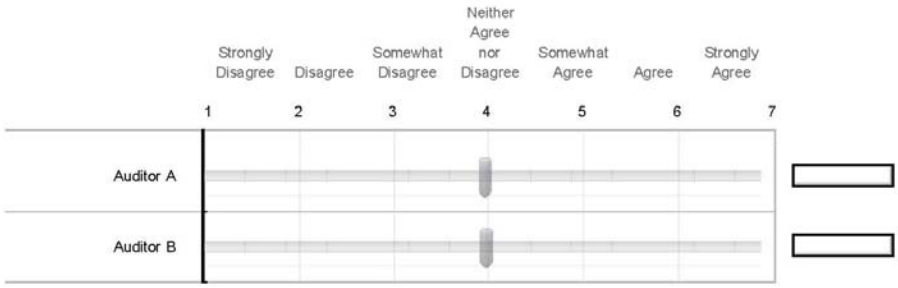
The decision to give a clean audit opinion was influenced by the company's management.



The auditor is less independent than most other auditors.



Other auditors would reach the same opinion about the company's financial statements.



Auditor A is more independent than Auditor B.

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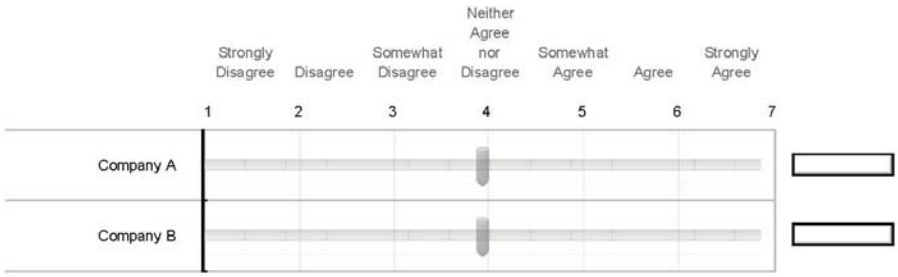
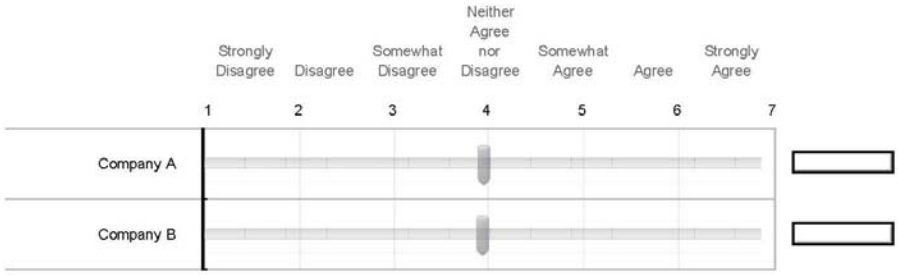
Please respond to the following statements on a scale of 1-7, with 1 being "strongly disagree" and 7 being "strongly agree" for both Company A and Company B.

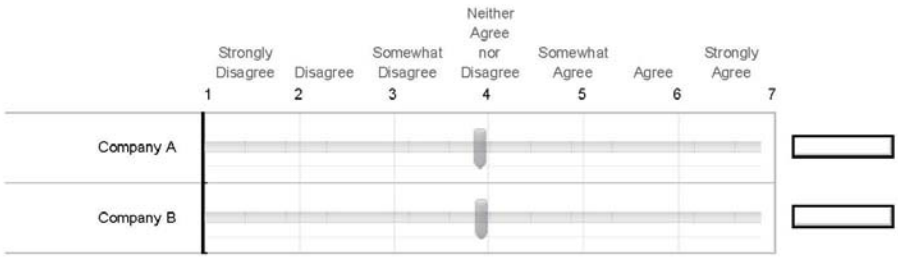
The company's management is competent.



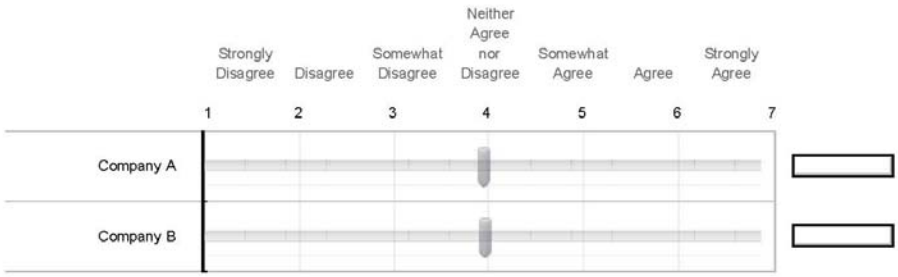
The company's management is not credible



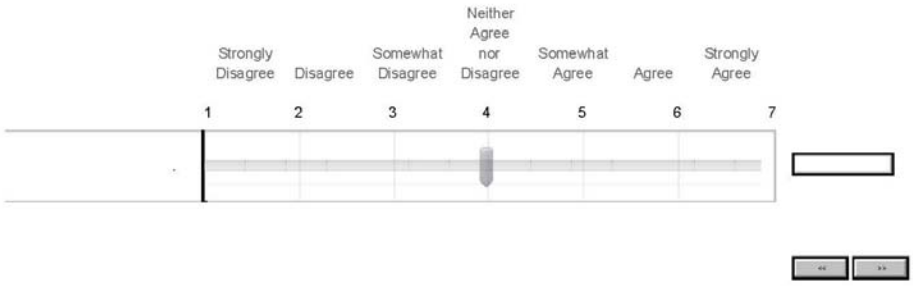
The company's management is trustworthy.



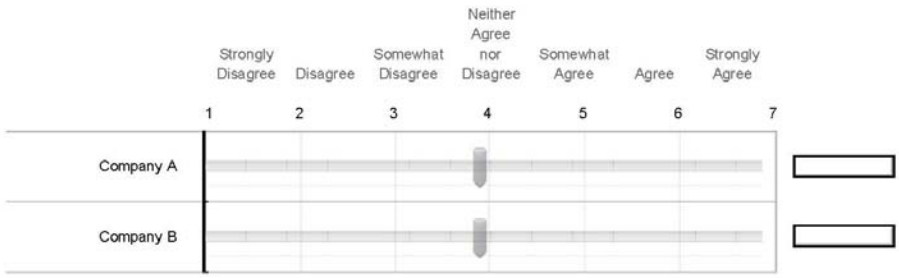
The company's management makes financial reporting choices that are self-serving.



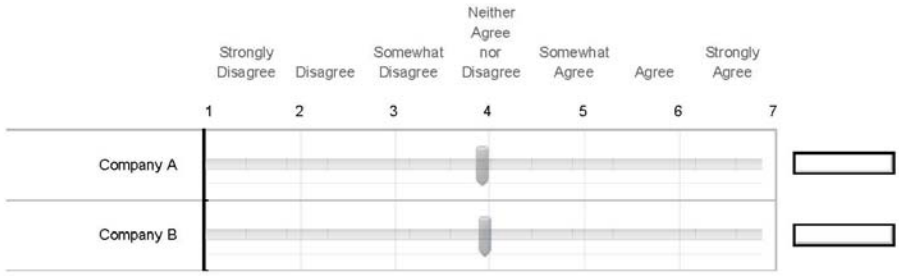
Company A's management is more credible than Company B's management.



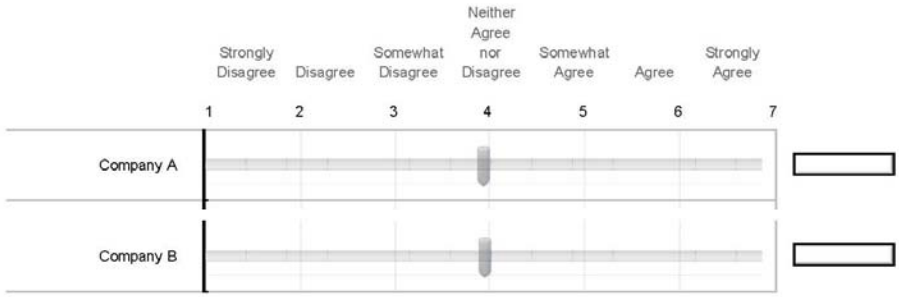
The company's financial statements accurately represent their performance.



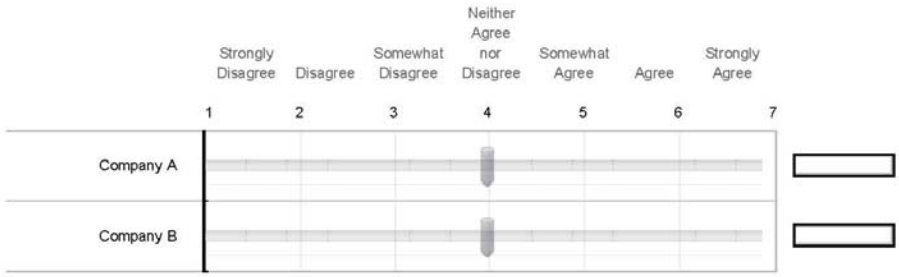
The company's financial statements are reliable.



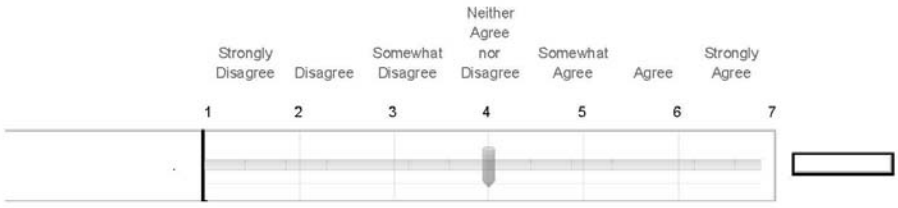
The company's financial statements are biased.



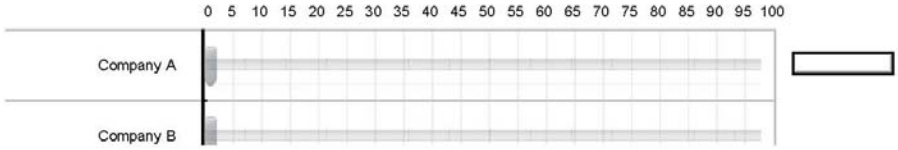
The company's financial statements are a good indicator of future performance.



Overall, Company A's financial statements are higher quality than Company B's financial statements.



Please answer the following questions for each company.
In your opinion, what is the likelihood (0-100%) that the company's financial statements contain a misstatement that ***you*** would consider important?



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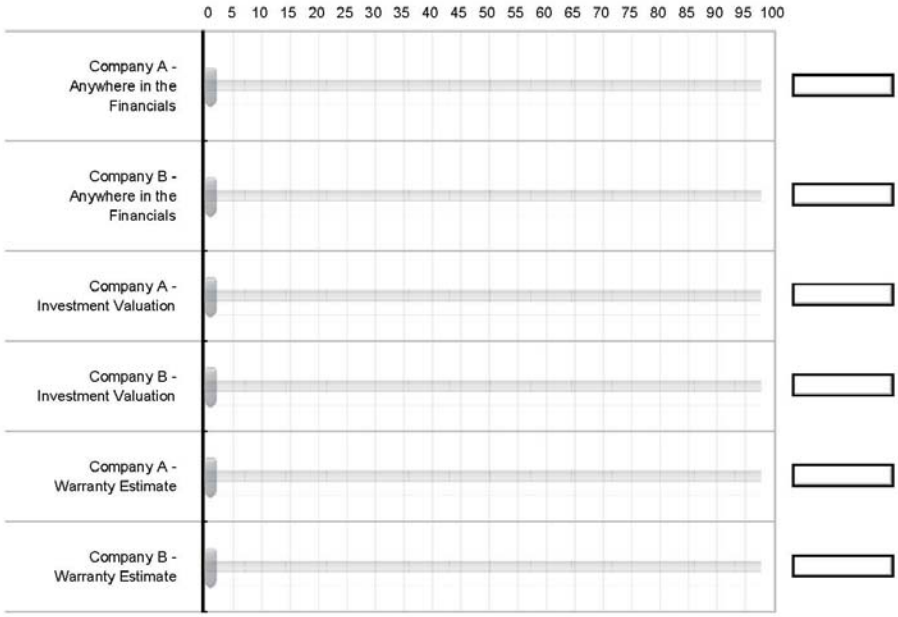
In your opinion, what is the likelihood (0-100%) that the company's financial statements contain a misstatement in the following areas:



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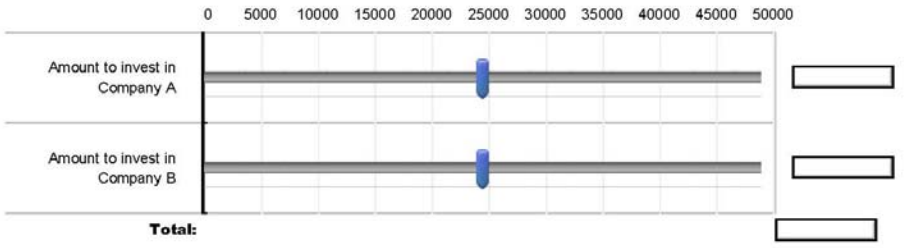
For the next two questions, please assume that you have $50,000 to invest. You can choose to invest the $50,000 in Company A or Company B or in any combination of the two. However, the TOTAL amount invested must equal $50,000. Please note that the sliders cannot be moved into positions that total more than $50,000, so you must move one left before you can move the other further right.



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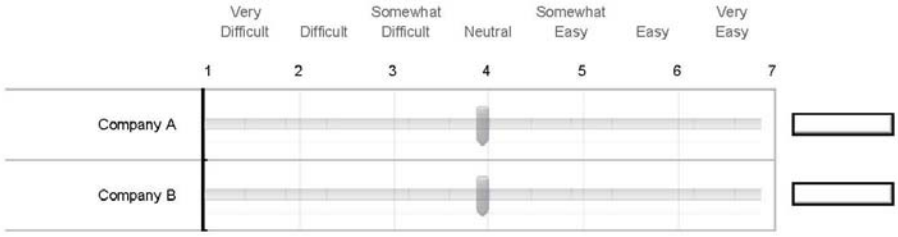
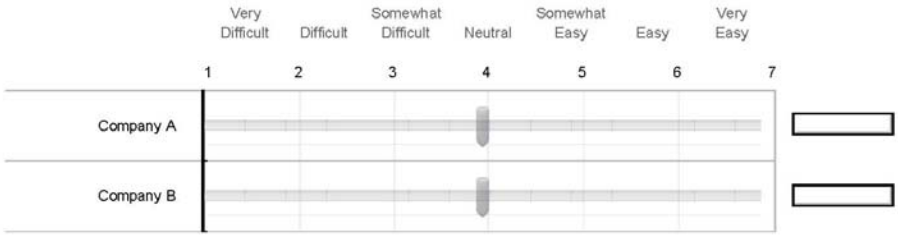
How useful did you find the auditor's disclosure to the audit committee when making your investment decision?

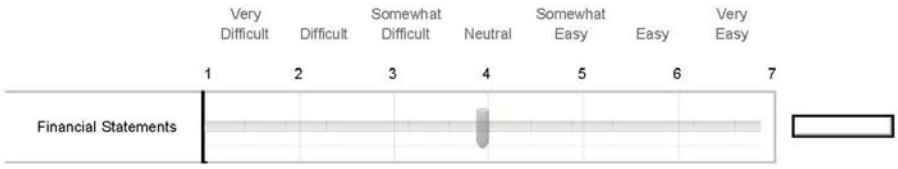
How difficult is it to understand the company's financial statements?



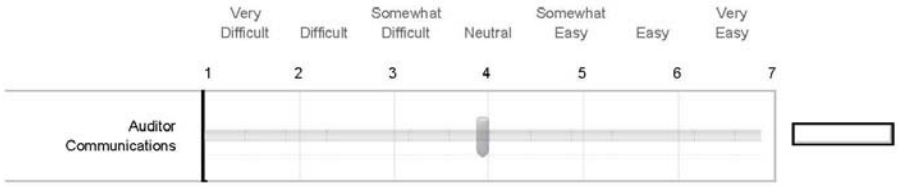
How difficult is it to understand the auditor disclosures?



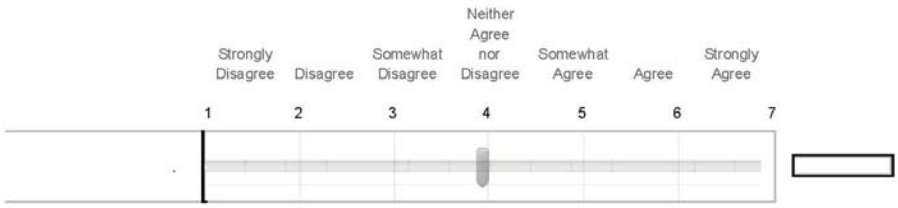
How difficult is it to compare financial statements between Company A and Company B?



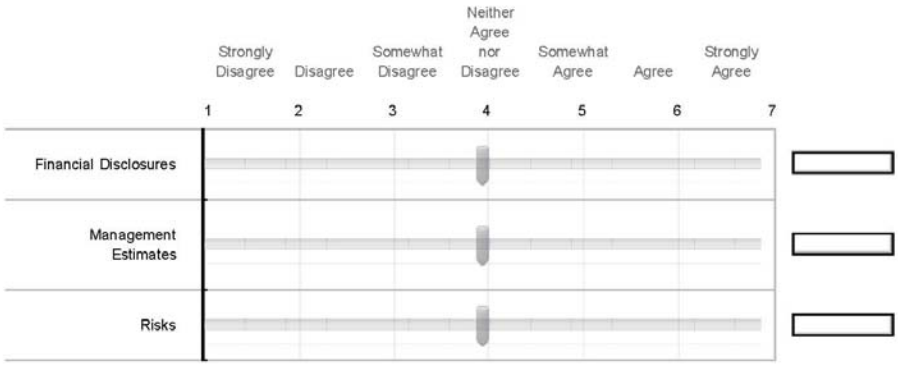
How difficult is it to compare auditor disclosures between Company A and Company B?



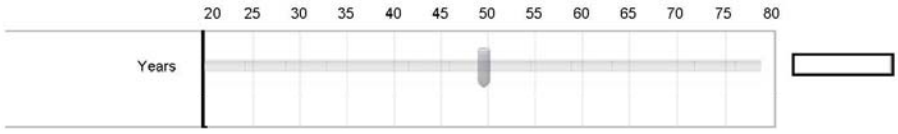
Please respond to the following statements on a scale of 1-7, with 1 being "strongly disagree" and 7 being "strongly agree":
The communications between auditors and audit committees should be made public.



Auditors should be required to provide a discussion and analysis of key financial disclosures, management estimates, and risks identified during the audit.



What is your age?



Gender

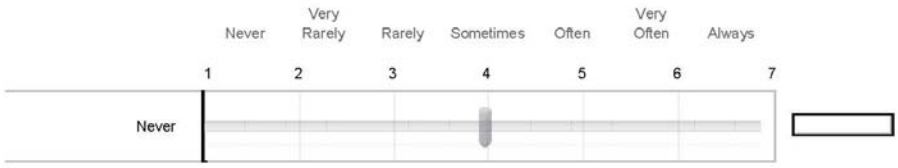
- Male
- Female

What was the approximate value of your equity holdings as of June 30, 2012?

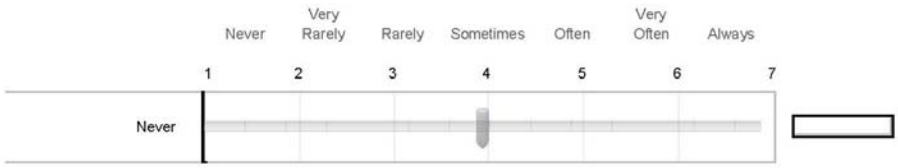
- $0
- $1 - $10,000
- $10,001 - $20,000
- $20,001 - $50,000
- $50,001 - $100,000
- $100,001 or more

Approximately how many public company financial statements do you read or refer to during an average month?

Please respond to the following two questions on a scale of 1-7, with 1 being never and 7 being always:
How often do you review a company's financial statements before making an investment decision?



How often do you review the auditor's report accompanying the financial statements before making an investment decision?



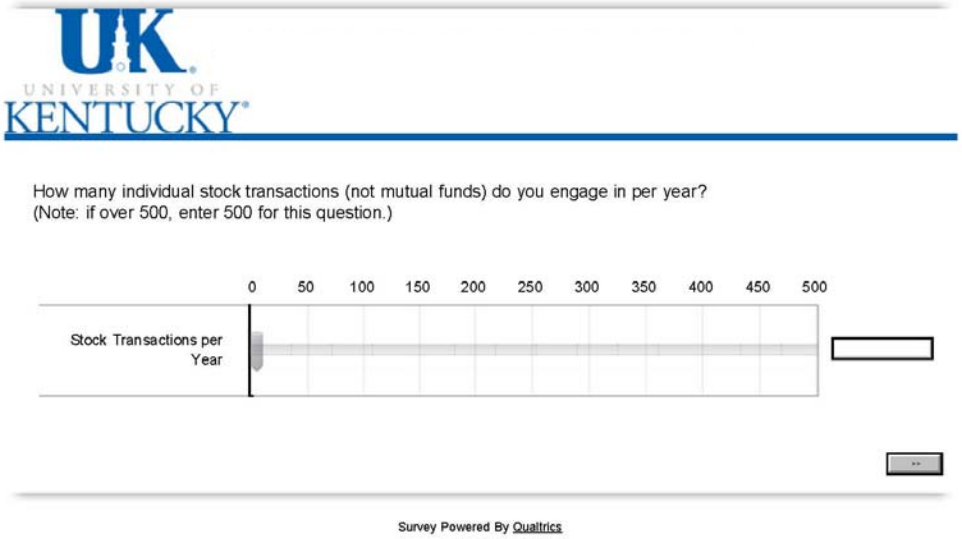
If you have an undergraduate degree, what was your major field of study?

Approximately how many accounting classes have you taken?

Are you **currently** employed as an external auditor?

- Yes
- No

Appendix C – Instrument: Experiment Two



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Dear Participant:

You are being invited to take part in a research study about how financial statement users make investment decisions. The research is being conducted by Marcus M. Doxey, a PhD student at the University of Kentucky. Mr. Doxey is being supervised by his dissertation chair, Dr. Bob Ramsay, professor of accounting at the University of Kentucky. Your responses may help us understand more about audit disclosures and their affect on investors.

We hope to receive completed surveys for this segment of the study from about 130 people, so your answers are important to us. Of course, you have a choice about whether or not to complete the questionnaire, but if you do participate, you are free to discontinue at any time.

The survey will take about 10 minutes to complete.

Legal Disclosures

Any rewards or incentives you receive for taking this survey will be determined solely by your user agreement with Toluna.

There are no known risks to participating in this study.
Your response to the survey will be kept confidential to the extent allowed by law. When we write about the study you will not be identified. We will keep private all research records that identify you to the extent allowed by law. However, there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court. Also, we may be required to show information which identifies you to people who need to be sure we have done the research correctly; these would be people from such organizations as the University of Kentucky.

As part of the study, you will be asked fill out an online survey at a website hosted by Qualtrics. Please be aware, while we make every effort to safeguard your data once received from the online survey/data gathering company, given the nature of online surveys, as with anything involving the Internet, we can never guarantee the confidentiality of the data while still on the survey/data gathering company's servers, or while en route to either them or us. It is also possible the raw data collected for research purposes may be used for marketing or reporting purposes by the survey/data gathering company after the research is concluded, depending on the company's Terms of Service and Privacy policies.

If you have questions about the study, please feel free to ask; my contact information is given below. If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428.

Thank you in advance for your assistance with this important project.

Sincerely,

Marcus M. Doxey, PhD Candidate
Von Allmen School of Accountancy, University of Kentucky
PHONE: 859-553-2096
E-MAIL: marcus.doxey@uky.edu

Bob Ramsay, PhD, Arthur Andersen Professor of Accountancy
Von Allmen School of Accountancy, University of Kentucky
PHONE: 859-257-3702
E-MAIL: rjrams2@uky.edu

You are encouraged to take notes as you proceed through the survey. As you continue you will be...

1. ...provided background information on a company that is the basis for the survey.
2. ...given information about the company's audit.
3. ...asked a series of questions.
4. ...asked to make a hypothetical investment decision.
5. ...provided with additional information about the company's audit.
6. ...asked additional questions.

You will then conclude the study.

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Background Information

Assume that you are considering making an investment in GreatCarts, Inc. GreatCarts, Inc. designs, manufactures, and sells a variety of shopping carts. GreatCarts markets the carts to consumer retailers in a variety of segments including grocery, department, big box, and home improvement stores. The market for shopping and transportation carts is estimated at $10 billion annually, and the industry is forecasted to remain stable through the next five years. The industry consists of nine companies in the United States (including GreatCarts) who cater to various segments of the market. GreatCarts has engaged Smith & Smith, LLP, a public accounting firm, to perform the annual financial statement audit. **GreatCarts received a clean audit opinion from Smith & Smith.**

The financial statements for GreatCarts are presented below, but you may also click this link to open them in a new window or save them to your computer for later reference.

GreatCarts, Inc.
Comparative Balance Sheet
As of December 31, 2012

Balance Sheet Items	2012	2011
Assets		
Cash and Cash Equivalents	6,197,884	6,160,850
Marketable Securities	1,668,494	1,533,839
Net Accounts Receivable	17,509,257	17,475,039
Inventory (FIFO)	15,488,632	15,440,548
Prepaid Expenses	1,652,155	1,632,845
Total Current Assets	**42,516,422**	**42,243,121**
Property, Plant, and Equipment	22,895,866	22,865,884
Less: Accumulated Depreciation	(3,858,901)	(3,698,995)
Net Property Plant and Equipment	19,036,965	19,166,889
Intangibles - Net	1,153,798	1,244,336
All other Non-Current Assets	3,518,708	3,497,648
Total Assets	**66,225,893**	**66,151,994**
Liabilities and Owners' Equity		
Accounts Payable	10,009,308	9,953,419
Accrued Tax Liability	560,526	580,458
Notes Payable - Short-Term	6,176,412	6,239,994
Current Portion of Long-Term Debt	2,187,716	2,241,432
Other Current Liabilities	5,961,973	5,928,350
Total Current Liabilities	**24,895,935**	**24,943,653**
Long-Term Debt	8,242,398	8,197,201
Other Non-Current Liabilities	3,217,171	3,185,046
Common Stock	3,514,500	3,514,500
Retained Earnings	26,355,889	26,311,594
Total Shareholders' Equity	**29,870,389**	**29,826,094**
Total Liabilities and Owners' Equity	**66,225,893**	**66,151,994**
Debt Ratio	55%	55%
Current Ratio	1.7	1.7

GreatCarts, Inc.
Income Statement
For the Year Ended December 31, 2012

	2012	2011	2010
Sales	126,945,800	126,978,621	126,792,870
(Sales Returns & Allowances)	(2,553,770)	(2,580,000)	(2,501,965)
Net Sales	**124,392,030**	**124,398,621**	**124,290,905**
(Cost of Goods Sold)	(89,021,248)	(89,001,234)	(88,934,776)
Gross Profit	**35,370,782**	**35,397,387**	**35,356,129**
(Selling & Administrative Expenses)	(25,796,549)	(25,829,169)	(25,813,577)
Operating Income	**9,574,233**	**9,568,218**	**9,542,552**
All Other Revenue (Expenses) - Net	(443,252)	(433,530)	(447,008)
Earnings Before Interest & Taxes	**9,130,981**	**9,134,688**	**9,095,544**
Interest Expense	(676,680)	(693,274)	(676,180)
Earnings Before Taxes	**8,454,301**	**8,441,414**	**8,419,364**
Income Taxes	(2,587,015)	(2,586,373)	(2,583,310)
Net Income	**5,867,286**	**5,855,041**	**5,836,054**
EPS	$ 1.67	$ 1.67	$ 1.66

GreatCarts, Inc
Statement of Cash Flows
For the Year Ended December 31, 2012

	2012	2011	2010
Operating Activities			
Net Income	5,867,286	5,855,041	5,836,054
Adjustment for Depreciation	1,553,851	1,525,792	1,502,107
Adjustment for Amortization	90,538	90,537	90,537
Changes in Receivables	(34,218)	(40,803)	98,560
Changes in Inventories	(48,084)	(3,951)	5,228
Changes in Prepaid Expenses	(19,310)	(47,297)	30,080
Changes in Other Non-Current Assets	(21,060)	(59,079)	(22,917)
Changes in Accounts Payable	55,889	(13,849)	21,656
Changes in Taxes & Other Current Liabilities	13,691	37,678	(7,579)
Changes in Other Non-Current Liabilities	32,125	(31,564)	59,674
Cash Flow from Operating Activities	**7,490,708**	**7,312,505**	**7,613,400**
Investing Activities			
Changes in Marketable Securities	(134,655)	2,717	(36,464)
Net Purchases (Disposals) of Property Plant & Equipment	(1,423,927)	(1,451,970)	(1,432,698)
Cash Flow from Investing Activities	**(1,558,582)**	**(1,449,253)**	**(1,469,162)**
Financing Activities			
Net Increase (Decrease) in Long-Term Notes Payable	(8,519)	(13,202)	(5,919)
Net Increase (Decrease) in Short-Term Notes Payable	(63,582)	26,715	(32,467)
Cash Dividends Paid	(5,822,991)	(5,842,807)	(5,772,420)
Cash Flow from Financing Activities	**(5,895,092)**	**(5,829,294)**	**(5,810,806)**
Net Cash Flows	37,034	33,958	333,432
Beginning Cash Balance	6,160,850	6,126,895	5,793,463
Ending Cash Balance	**6,197,884**	**6,160,853**	**6,126,895**

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Materiality - Definition

According to the Securities and Exchange Commission, a financial disclosure is material if the item would affect the judgment of a reasonable investor. Auditors should consider what affect an item would have on reasonable investors when deciding whether or not financial statements are materially misstated.

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A misstatement in GreatCarts' financial statements of **AT LEAST** $_____ would affect my investment decision.

A misstatement in GreatCarts' financial statements **SMALLER** than $_____ would **NOT** affect my investment decision.

I believe GreatCarts' auditors should use $_____ as a general materiality threshold for the audit.

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Audit Communication

As part of the audit, Smith & Smith made the following communication to the audit committee (part of the board of directors) of GreatCarts.

Materiality

Materiality concerns the significance of an item to users of financial statements. A matter is "material" if there is a substantial likelihood that a reasonable person would consider it important. While the materiality of financial statement disclosures can be measured with a dollar amount, we also consider other factors in our materiality determination, such as the nature of the item under consideration. As part of the audit process, we have established a quantitative threshold for material items. For the audit of GreatCarts' financial statements for the year ended December 31, 2012, our materiality threshold was $300,000. We used this threshold when identifying material misstatements and in judging whether the financial statements taken as a whole are materially misstated.

Auditor's Discussion of Significant Estimates

Financial reporting in accordance with accounting principles generally accepted in the United States of America requires management to make a number of estimates related to future financial outcomes and events. As part of our audit, we compared management's material estimates to estimates developed by the audit team. Two significant estimates were discussed at length with management during the audit. Details are included in the following sections.

1. Warranty Expense

- As part of its normal operations, the Company provides warranties against manufacturer's defects for all of its products. The warranty requires the Company to replace or repair any manufacturer defects as well as to cover shipping costs for all returns.
- During the year, the Company released a new product line that is covered by their standard warranty.
- Based on overall industry experience for similar products, we estimated warranty liability for the new product line between $300,000 and $400,000.
- Relying on their past experience with other product lines, management recorded a warranty liability for the new product line of $350,000.
- The amount recorded by management is in the middle of our estimated range.

2. Investment Valuation

- As part of its normal cash management practices, the Company regularly invests a portion of its cash reserves in a number of investment assets including equity and debt holdings.
- During the year, the Company invested a portion of its reserves in debt instruments of an unrelated corporate entity. These debt instruments are no longer actively traded in the open market as of December 31, 2012.
- Based on the estimates of valuation specialists employed by us, we estimate the fair value of the Company's recently acquired debt investment to be between $275,000 and $350,000 as of December 31, 2012.
- Based on their internal estimates, the Company reported the fair value of these instruments as $315,000 as of December 31, 2012.
- The amount recorded is near the middle of our estimated range.

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Audit Communication

As part of the audit, Smith & Smith made the following communication to the audit committee (part of the board of directors) of GreatCarts.

Materiality

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- Based on their internal estimates, the Company reported the fair value of these instruments as $315,000 as of December 31, 2012.
- The amount recorded is near the middle of our estimated range.

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A misstatement in GreatCarts' financial statements of **AT LEAST** $_____ would affect my investment decision.

A misstatement in GreatCarts' financial statements **SMALLER** than $_____ would **NOT** affect my investment decision.

I believe GreatCarts' auditors should use $_____ as a general materiality threshold for the audit.

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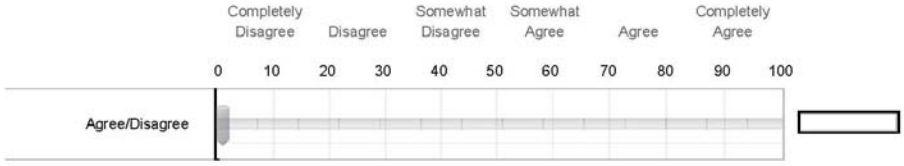
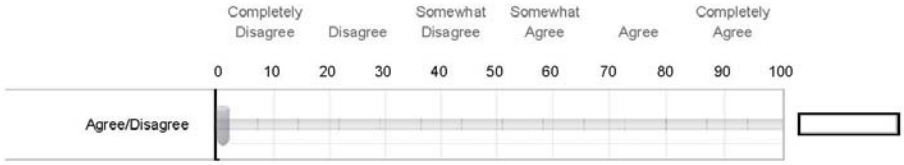
Please respond to the following items on a scale of 0-100, with 0 being "completely disagree" and 100 being "completely agree."

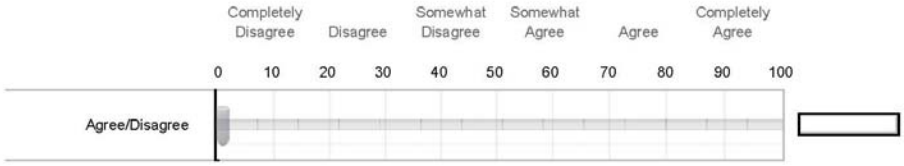
Smith & Smith, LLP conducted a high quality audit of GreatCarts, Inc.



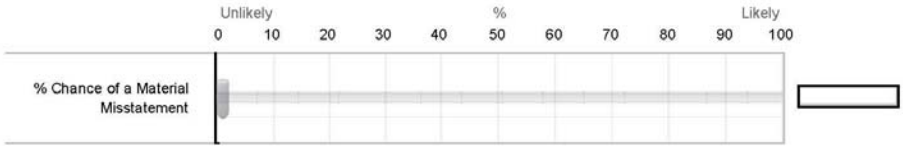
I agree with Smith & Smith's decision to give GreatCarts' financial statements a clean audit opinion.



I believe other auditors would have given the same opinion on GreatCarts' financial statements.



What is the likelihood (0%-100%) that GreatCarts' financial statements contain a misstatement that would matter to you?



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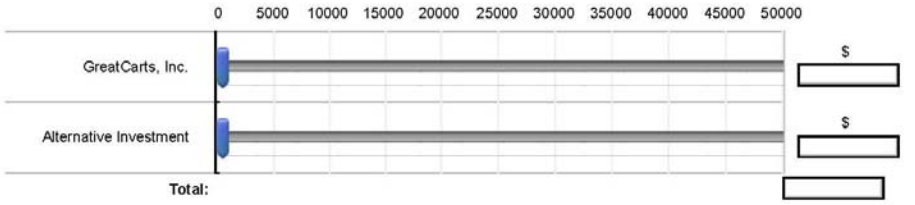
For this question, please assume you have $50,000 to invest. You can choose to invest the $50,000 in GreatCarts, an alternative investment, or in any combination of the two, but the total must add to $50,000.



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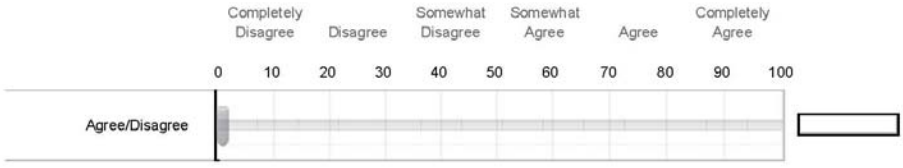
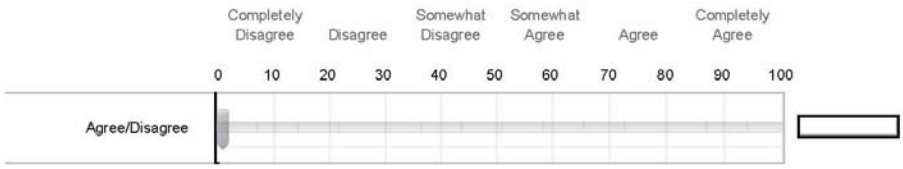
Recently, it came to light that GreatCarts' financial statements contained misstatements that were the result of a single, *unintentional* error in recording revenue.

- On the income statement, GreatCarts' revenue was overstated by $250,000, and as a result bad debt expense was overstated by $2,500 and, in total, net income was overstated by $247,500.
- On the balance sheet, net accounts receivable and stockholders' equity were also overstated by $247,500 as a result of the error.
- GreatCarts' auditor, Smith & Smith, LLP, was aware of the error but did not require GreatCarts to correct it because Smith & Smith considered it immaterial.

The misstatements described above would affect my investment decisions related to GreatCarts, Inc.



I believe the misstatements described above would affect the average investor's investment decisions related to GreatCarts, Inc.



Now that you have additional information, would you like to reconsider your earlier investment allocation?

- ○ Yes
- ○ No

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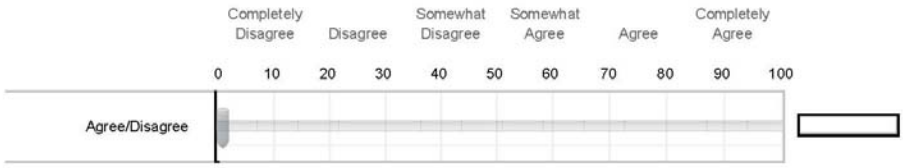
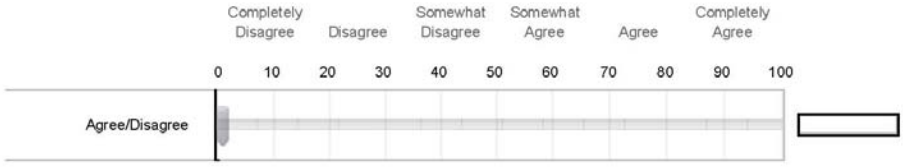
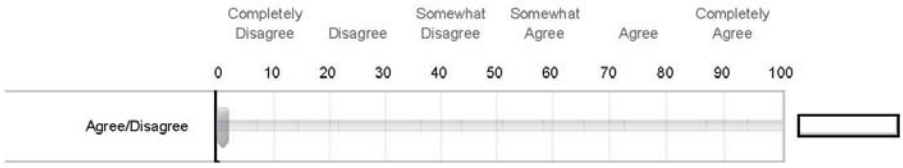
I believe Smith & Smith conducted a high quality audit of GreatCarts.



I believe Smith & Smith are competent auditors.



I agree with Smith & Smith's decision to give GreatCarts' financial statements a clean audit opinion.



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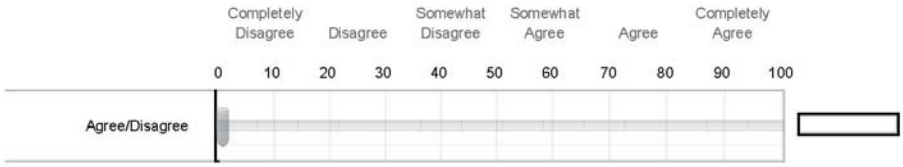
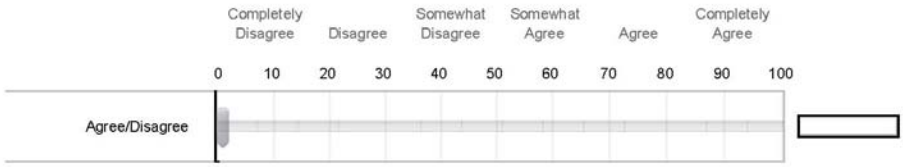
I believe other auditors would have given the same opinion on GreatCarts' financial statements.



I think Smith & Smith should be held liable for the errors in GreatCarts' financial statements.



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Age, in years:

Sex:

- Male
- Female

What was the approximate value of your equity holdings as of September 1, 2012.

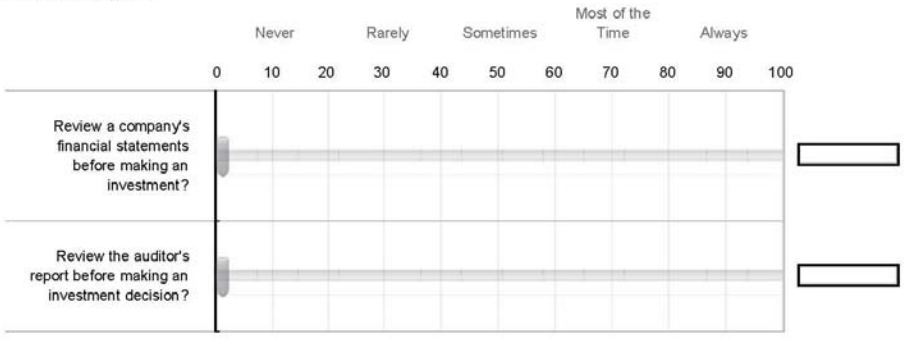
- $0
- $1 - $999
- $1,000 - $9,999
- $10,000 - $19,999
- $20,000 - $49,999
- $50,000 - $99,999
- $100,000 or more

Approximately how much money do you invest in equities on an annual basis?

- $0
- $1 - $999
- $1,000 - $9,999
- $10,000 - $19,999
- $20,000 - $49,999
- $50,000 - $99,999
- $100,000 or more

Approximately how many public company financial statements do you read or refer to during an average month?

How often do you...



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Appendix D – Correlation Table: Experiment One

Pearson Correlations, N=112

Variable	Agreement	Consistent	Ind1	Ind2	Ind4	Ind5	Ind6	Ind7
Agreement	1	.054	-.296**	-.316**	-.286**	-.177	-.230*	-.288**
Consistent	.054	1	-.130	-.121	-.102	-.015	-.071	-.191*
Ind1	-.296**	-.130	1	.540**	.613**	.469**	.521**	.560**
Ind2	-.316**	-.121	.540**	1	.416**	.336**	.258**	.491**
Ind4	-.286**	-.102	.613**	.416**	1	.492**	.462**	.439**
Ind5	-.177	-.015	.469**	.336**	.492**	1	.374**	.329**
Ind6	-.230*	-.071	.521**	.258**	.462**	.374**	1	.445**
Ind7	-.288**	-.191*	.560**	.491**	.439**	.329**	.445**	1
Cred1	-.210*	-.117	.444**	.284**	.331**	.261**	.400**	.345**
Cred2	-.216*	.013	.621**	.334**	.554**	.519**	.460**	.436**
Cred3	-.418**	-.194*	.517**	.417**	.422**	.361**	.515**	.516**
Cred4	-.295**	-.170	.158	.172	.165	.078	.159	.195*
Cred5	-.404**	-.186*	.470**	.345**	.321**	.251**	.471**	.639**
RQ1	-.337**	-.191*	.575**	.302**	.455**	.268**	.571**	.399**
RQ2	-.332**	-.240*	.578**	.260**	.417**	.355**	.537**	.400**
RQ3	-.219*	-.131	.393**	.256**	.378**	.323**	.521**	.273**
RQ4	-.297**	-.058	.540**	.247**	.407**	.308**	.402**	.346**
RMM2	.284**	.128	-.205*	-.116	-.239*	-.171	-.351**	-.195*
RMM3	.280**	.167	-.177	-.151	-.171	-.186	-.271**	-.135
RMM4	.346**	.125	-.278**	-.231*	-.312**	-.238*	-.310**	-.220*
RMM5	.416**	.228*	-.345**	-.229*	-.297**	-.220*	-.337**	-.247**
Investment	-.467**	-.210*	.411**	.344**	.323**	.140	.448**	.540**

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlation Table (continued)

Pearson Correlations, N=112

Variable	Cred1	Cred2	Cred3	Cred4	Cred5	RQ1	RQ2	RQ3	RQ4
Agreement	-.210*	-.216*	-.418**	-.295**	-.404**	-.337**	-.332**	-.219*	-.297**
Consistent	-.117	.013	-.194*	-.170	-.186*	-.191*	-.240*	-.131	-.058
Ind1	.444**	.621**	.517**	.158	.470**	.575**	.578**	.393**	.540**
Ind2	.284**	.334**	.417**	.172	.345**	.302**	.260**	.256**	.247**
Ind4	.331**	.554**	.422**	.165	.321**	.455**	.417**	.378**	.407**
Ind5	.261**	.519**	.361**	.078	.251**	.268**	.355**	.323**	.308**
Ind6	.400**	.460**	.515**	.159	.471**	.571**	.537**	.521**	.402**
Ind7	.345**	.436**	.516**	.195*	.639**	.399**	.400**	.273**	.346**
Cred1	1	.402**	.510**	.299**	.385**	.431**	.447**	.439**	.442**
Cred2	.402**	1	.544**	.270**	.379**	.560**	.564**	.514**	.503**
Cred3	.510**	.544**	1	.448**	.646**	.618**	.648**	.584**	.539**
Cred4	.299**	.270**	.448**	1	.375**	.304**	.396**	.466**	.226*
Cred5	.385**	.379**	.646**	.375**	1	.582**	.682**	.479**	.489**
RQ1	.431**	.560**	.618**	.304**	.582**	1	.840**	.590**	.599**
RQ2	.447**	.564**	.648**	.396**	.682**	.840**	1	.655**	.700**
RQ3	.439**	.514**	.584**	.466**	.479**	.590**	.655**	1	.539**
RQ4	.442**	.503**	.539**	.226*	.489**	.599**	.700**	.539**	1
RMM2	-.314**	-.283**	-.507**	-.331**	-.369**	-.448**	-.557**	-.532**	-.489**
RMM3	-.282**	-.224*	-.478**	-.365**	-.345**	-.347**	-.511**	-.533**	-.386**
RMM4	-.431**	-.373**	-.551**	-.424**	-.394**	-.434**	-.603**	-.570**	-.545**
RMM5	-.447**	-.354**	-.601**	-.365**	-.420**	-.427**	-.564**	-.524**	-.526**
Investment	.434**	.354**	.604**	.424**	.790**	.570**	.577**	.462**	.488**

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlation Table (continued)

Pearson Correlations, N=112

Variable	RMM2	RMM3	RMM4	RMM5	Investment
Agreement	.284**	.280**	.346**	.416**	-.467**
Consistent	.128	.167	.125	.228*	-.210*
Ind1	-.205*	-.177	-.278**	-.345**	.411**
Ind2	-.116	-.151	-.231*	-.229*	.344**
Ind4	-.239*	-.171	-.312**	-.297**	.323**
Ind5	-.171	-.186	-.238*	-.220*	.140
Ind6	-.351**	-.271**	-.310**	-.337**	.448**
Ind7	-.195*	-.135	-.220*	-.247**	.540**
Cred1	-.314**	-.282**	-.431**	-.447**	.434**
Cred2	-.283**	-.224*	-.373**	-.354**	.354**
Cred3	-.507**	-.478**	-.551**	-.601**	.604**
Cred4	-.331**	-.365**	-.424**	-.365**	.424**
Cred5	-.369**	-.345**	-.394**	-.420**	.790**
RQ1	-.448**	-.347**	-.434**	-.427**	.570**
RQ2	-.557**	-.511**	-.603**	-.564**	.577**
RQ3	-.532**	-.533**	-.570**	-.524**	.462**
RQ4	-.489**	-.386**	-.545**	-.526**	.488**
RMM2	1	.884**	.836**	.783**	-.351**
RMM3	.884**	1	.820**	.825**	-.288**
RMM4	.836**	.820**	1	.856**	-.387**
RMM5	.783**	.825**	.856**	1	-.424**
Investment	-.351**	-.288**	-.387**	-.424**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

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